Service Manual

XGA COLOR MONITOR

Model : 715B

DAEWOO ELECTRONICS CO., LTD.

http : //svc.dwe.co.kr

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SAFETY PRECAUTIONS

CAUTION: No modifications of any circuits should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

◆ Safety Check

Care should be taken while servicing this analog color display because of the high voltages used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

◆ Fire & Shock Hazard

- Insert an isolation transformer between the analog color display and AC power line before servicing the chassis.
- When servicing, pay close attention to the original lead dress especially in the high voltage circuit area; if a short circuit is found, replace all parts which have been overheated as a result of the short circuit.
- All the protective devices must be reinstalled per original design.
- Soldering must be inspected for possible cold solder points, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign materials.

◆ Implosion Protection

Picture tube in this monitor employs integral implosion protection system, but care should be taken to avoid damage and scratching during installation.
Only use same type replacement picture tubes.

IMPORTANT SAFETY NOTICE: There are special components used in this analog color display, which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-Ray, shock, fire or other hazards. Do not modify the original design without getting written permission from DAEWOO ELECTRONICS CO. or this will void the original parts and labor warranty.

◆ X-Ray

WARNING: The only potential source of X-Ray is the picture tube. However when the high voltage circuitry is operating properly, there is no possibility of an X-Ray problem. The basic precaution which must be exercised is to keep the high voltage at the following factory recommended level.

NOTE: It is important to use an accurate, periodically, calibrated high voltage meter.

- To measure the high voltage, use a high-impedance high-voltage meter. Connect(-) to chassis and (+) to the CRT anode button.
- Turn the Contrast & Brightness Control fully counterclockwise.
- Measure the high voltage. The high voltage meter should indicate the following factory recommended levels.
- If the upper meter indication exceeds the maximum level, immediate service is required to prevent the possibility of premature component failure.
- To prevent X-Ray possibility, it is essential to use the specified picture tube.
- The normal high voltage is 25.5KV or below and must not exceed 29KV at zero beam current at rated voltage.

GENERAL SAFETY INFORMATION

◆ Terms in the manual

CAUTION Statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING Statements identify conditions or practices that could result in personal injury or loss of life.

◆ Terms as marked on equipment

CAUTION Statements indicate a personal injury hazard not immediately accessible as one reads the marking or a hazard which is properly included on the equipment itself.

WARNING Statements are clearly concerning indicated personal injury hazards.

◆ Symbols in the manual

The symbols indicate where applicable cautionary or other information is to be found.

◆ Symbols as marked on equipment

Protective GROUND terminal

◆ High Voltage Warning And Critical Component Warning Label

The following warning label is on the CRT PWB shield case inside the unit.

Warning: This product includes critical mechanical and electrical parts which are essential for x ray protection. For continued safety, replace critical components that are indicated in the service manual with exact replacement parts given in the parts list.
Operating high voltage with this product is 29Kv at minimum brightness. Refer to service manual for measurement procedures and proper service adjustments.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service manual, its supplements, and addendum, please read and follow the SAFETY PRECAUTIONS of this manual.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 1 of this manual, always follow the safety precautions.
Remember: Safety First.

◆ General Servicing Precautions

1. Always unplug the AC power cord from the AC power source before:
   a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.
   b. Disconnecting or reconnecting any electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in a explosion.

   d. Discharging the picture tube anode.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM. etc.) equipped with a suitable high voltage probe. Do not test high voltage by “drawing an arc”.

3. Discharge the picture tube anode only by: (a) first connecting one end of an insulated clip lead to the degaussing or line grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touching the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.

4. Do not any spray chemicals on or near this instrument, or any of its assemblies.

5. Unless otherwise specified in this service manual, only clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick, or comparable nonabrasive applicator: 10% (by volume) Aceton and 90% (by volume) isopropyl alchohol (90%-99% strength).

   CAUTION: This is a flammable mixture. Unless specified in this service manual, lubrication of contacts is not required.

6. Do not damage any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.

7. Do not apply AC power to this instrument and/or any other of its electrical assemblies unless all the solid-state device heat sinks are correctly installed.

8. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

9. Only use the test fixtures specified in this service manual with this instrument.

   CAUTION: Do not connect the test fixture ground strap to any heatsink in this instrument.

◆ Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity.
Such components are commonly called Electrostatically Sensitive (ES) Devices.
The typical examples of ES devices are integrated circuits, some field-effect transistors, and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, wipe off any electrostatic charge on your body by touching any known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device which should be removed for potential shock reasons prior to applying power to the unit under testing conditions.

2. After removing the electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil to prevent electrostatic charge buildup or exposure to the assembly.

3. Only use a grounded-tip soldering iron to solder or unsolder ES devices.

4. Only use an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate enough electrical charges to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate enough electrical charges to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of replacement ES devices, touch the protective material to the chassis or circuit assembly into which the device will be installed.

> **CAUTION:** Be sure that no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily movements when handling unpackaged replacement ES devices. (Otherwise harmful motion such as the brushing together clothes fabric or the lifting your foot from a carpeted floor can generate enough static electricity to damage ES devices).

◆ General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron with appropriate tip size and shape that will maintain tip temperature between a 550°F-660°F (288°C-316°C) range.

2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.

3. Keep the soldering iron tip clean.

4. Throughly clean the surface to be soldered. Use a small wire-bristle (0.5 inch or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.

5. Use the following soldering technique:
   a. Allow the soldering iron tip to reach normal temperature (550°F to 660°F or 288°C to 316°C)
   b. Hold the soldering iron tip and solder strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there until the solder flows onto and around both the component lead and the foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

> **CAUTION**: Work quickly to avoid overheating the circuit board printed foil.

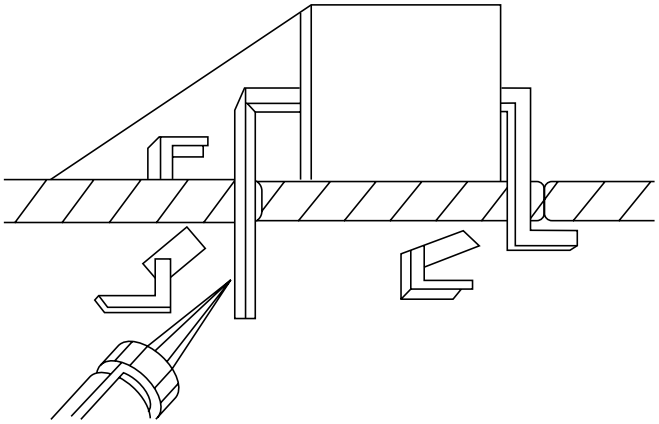


FIGURE 1. USE SOLDERING IRON TO PRY LEADS

◆ IC Removal/Replacement

Some utilized chassis circuit boards have slotted (oblong) holes through which the IC leads are inserted and then bent flat against the circuit foil. When holes are slotted, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 on the page under the title of general soldering guidelines.

◆ Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with desoldering braid before removing the IC.

◆ Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (lt is not necessary to reapply acrylic coating to the area).

◆ “Small-Signal” Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend the ends of each of three leads remaining on the circuit board into a “U” shape.
3. Bend the replacement transistor leads into a “U” shape.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to ensure metal-to-metal contact, then solder each connection.

◆ Power IC, Transistor or Devices Removal/Replacement

1. Heat and remove all solders from the device leads.
2. Remove the heatsink mounting screw (if applicable).
3. Carefully remove the device from the circuit board.
4. Insert new device in circuit board.
5. Solder each device lead and then clip off excess lead.
6. Replace heatsink.

◆ Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicularly to the circuit board.
3. Observing diode polarity, wrap each lead out of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect the solder joints of the two “original” leads on the circuit board copper side. If they are not shiny, reheat them and apply additional solder if necessary.

TECHNICAL INFORMATION

CDT Size		17-inch
Diagonal visible image area		16.2-inch
Dot Pitch		0.28 mm
Synchronization	Horizontal	30 - 70 KHz
	Vertical	50 - 160 Hz
Plug and Play		DDC1/2B/CI
Power Saving		EPA, VESA DPMS, Nutek Compliant
Power Source		100-240 Vac, 50/60Hz (Free Voltage)
Power Consumption		95W
Dimension-W x H x D (set with stand)		420 x 453 x 429mm
Weight-unpacked(lbs/Kg)		33.9/15.4
Operating Temperature		10 ~ 40°C /50 ~ 104°F

GENERAL INFORMATION

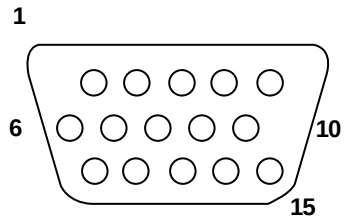
This color monitor automatically scans all horizontal frequencies from 30KHz to 70KHz, and all vertical frequencies from 50Hz to 160Hz. This color monitor supports IBM PC, PC/XT, PC/AT, personal System/2 (PS/2), Apple Macintosh, and compatible users crisp text and vivid color graphics display when using the following graphics adapters : (VGA, 8514/A, Super VGA, VESA and XGA and Apple Macintosh Video Card). And so, this color monitor has a maximum horizontal resolution of 1280 dots and a maximum vertical resolution of 1024 lines for superior clarity of display.
By accepting analog signal inputs which level is zero to 0.7 Volts. This color monitor can display and unlimited palette of colors depending on the graphics adapter and software being used.

◆ Abbreviations

ADJ	Adjustment
AFC	Automatic Frequency Control
CRT	Cathode Ray Tube
Def	Deflection
D.Y	Deflection Yoke
FBT	Flyback Transformer
H.SYNC	Horizontal Synchronization
OSC	Oscillator
P.S.U	Power Supply Unit
PWA	Printed Circuit Board Wiring Assembly
R.G.B	Red, Green, Blue
V.Sync	Vertical Synchronization

PIN CONNECTOR

Pin	Signal
1	Red
2	Green
3	Blue
4	GND
5	GND
6	GND - Red
7	GND - Green
8	GND - Blue
9	+5Vdc
10	GND - H.Sync
11	GND - V.Sync
12	Bi-directional Data (SDA)
13	Horizontal Sync
14	Vertical Sync (VCLK)
15	Data Clock (SCL)



Arrangement of 15-pin D-sub connector

CAUTIONS FOR ADJUSTMENT AND REPAIR

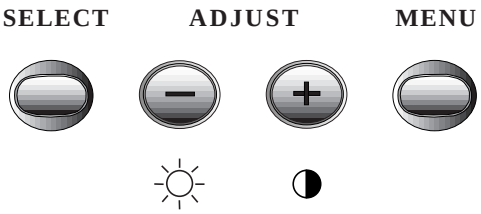
- Degaussing is always required when adjusting purity or convergence.
- The white balance adjustment has been done by a color analyzer in factroy. The adjustment procedure, described in the service manual is made by a visual check.
- Allow 20 minutes warm-up time for the display before checking or adjusting only electrical specification or function.
- Reform the leadwire after any repair work.

◆ Caution For Servicing

- In case of servicing or replacing CRT, high voltage sometimes remains in the anode of the CRT. Completely discharge high voltage before servicing or replacing CRT to prevent a shock to the serviceman.

OPERATION AND ADJUSTMENT

Control Panel



MENU

- Launch OSD(On-Screen Display) MENU window.

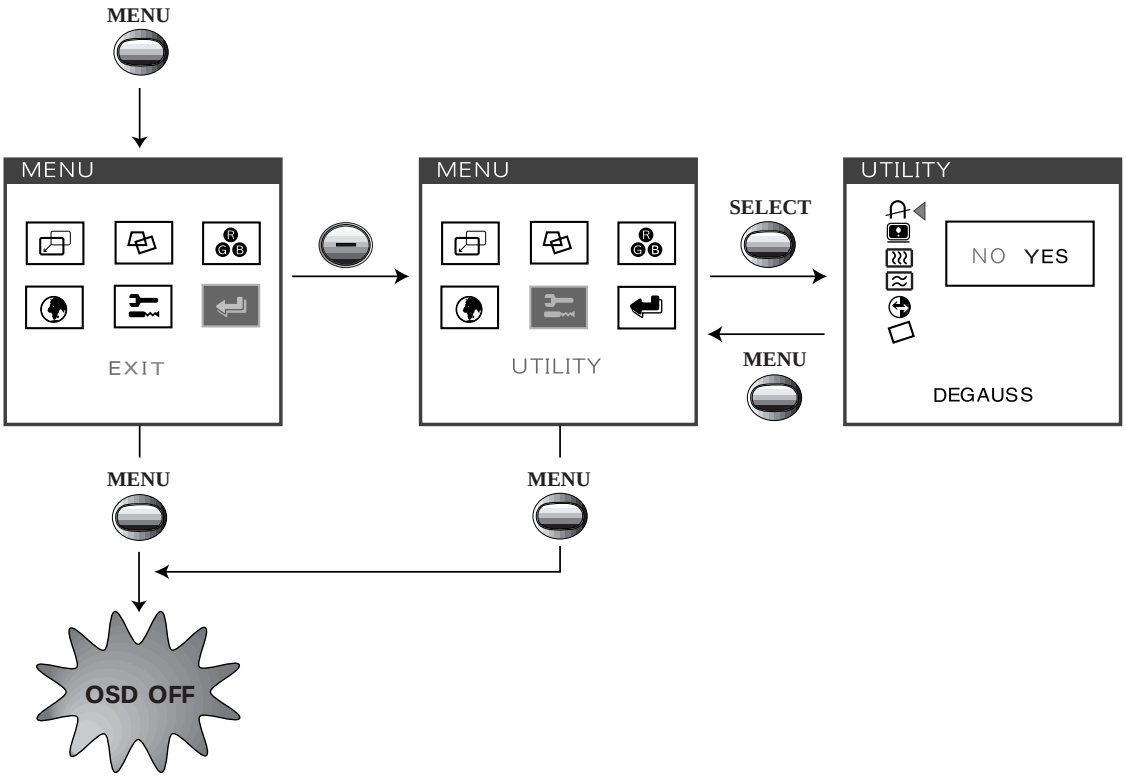
SELECT

- Select a sub Menu & function.

- Move a sub Menu & function.
- Increase the value of any selected function.
- Adjust the contrast directly when there is no OSD.

- Move a sub Menu & function.
- Decrease the value of any selected function.
- Adjust the brightness directly when there is no OSD.

Key Process



- When you choose the icon on the OSD window, you can exit the OSD screen.

OSD Functions

ICON	CONTROL	FUNCTIONS
	H. POSITION	Adjust the position of the display horizontally (left or right).
	V. POSITION	Adjust the position of the display vertically (up or down).
	H.SIZE	Adjust the display width (horizontal size).
	V.SIZE	Adjust the display height (vertical size).
	V. LINEARITY	Adjust the vertical linearity.
	H. LINEARITY	Adjust the horizontal linearity.
	PINCUSHION	Adjust the left and right margins for more convex or more concave margins.
	TRAPEZOID	Adjust the trapezoid of the screen by moving the lines inward or outward.
	PIN BALANCE	Adjust the side balance when the sides of the screen are bowed towards left or right.
	PARALLELOGRAM	Adjust the parallelogram when the screen is leaning left or right.
	T. PIN CORNER	Adjust the pin corner top when the top sides of the screen are bowed.
	B. PIN CORNER	Adjust the pin corner bottom when the bottom sides of the screen are bowed.
	T. PIN BALANCE	Adjust the side pin corner balance top when the top sides of the screen are bowed towards left or right.
	B. PIN BALANCE	Adjust the side pin corner balance bottom when the bottom sides of the screen are bowed towards left or right.

ICON	CONTROL	FUNCTIONS
	COLOR TEMP	Choose different preset color temperatures or set your own customized color parameters.
	RED GAIN	Adjust the red gain.
	GREEN GAIN	Adjust the green gain.
	BLUE GAIN	Adjust the blue gain.
	RED BIAS	Adjust the red bias.
	GREEN BIAS	Adjust the green bias.
	BLUE BIAS	Adjust the blue bias.
	LANGUAGE	Select language for OSD (5 languages).
	DEGAUSS	Degaussing keeps the monitor free from unwanted magnetism that can result in color impurity.
	STATUS	Display horizontal & vertical frequency and polarity.
	H. MOIRE	Adjust the horizontal picture moire cancellation.
	V. MOIRE	Adjust the vertical picture moire cancellation.
	RECALL	Reset the screen to the Factory Preset Display Settings.
	ROTATION	Adjust the rotation when the screen is tilted left or right (Optional).

ALIGNMENT PROCEDURE

◆ Standard Adjustment Conditions

1. Power source voltage : AC 120V, 60Hz/AC 220V, 50Hz.
2. Aging : Take at least 20 minutes warm-up time.
3. Signals.
   Video : Analog 0.7Vpp 75Ω terminal positive polarity
   Synchronizing : TTL Level Negative/Positive Separate/Composite
   Deflection frequency
   Horizontal Frequency : 30KHz - 70KHz
   Vertical Frequency : 50Hz - 160Hz

◆ Pre-Adjustment

1. High Voltage Adjustment
   Adjust 25.8K Vdc between Anode cap and ground at a cross hatch pattern of 60KHz by using VR 601.
2. H.Size Adjustment
   (a) Receive a cross hatch pattern of 60KHz
   (b) Set the H-Size control to the maximum on OSD menu.

◆ Method to launch the factory mode

Step 1. Push the menu button.

Step 2. Push the menu button and plus control button (+) for 5 times in same time.

◆ Main Adjustment

1. Setting the Controls
   Set the value of items as following.
   Contrast : Max. (OSD value up to 100)
   Brightness : Center (Set the OSD value to 50)
2. H.size, V.size, H.phase, V.position, Pincushion, Trapezoid
   Receive the cross hatch pattern of Factory preset mode.
   H.size, V.size, H.phase, V.position, Pincushion, Trapezoid are adjusted at each mode.
   In Factory, Auto Alignment was done at each mode. Therefore, Factory preset mode has it's own value according to each control.
3. Focus
   (a) Set brightness control to center and contrast control to MAX.
   (b) Receive all "H" character pattern of 60KHz mode signal.
   (c) Adjust the Focus control of FBT to obtain best Focus (static focus and Dynamic focus).
4. Geometric Distortion Adjustment
   (a) Receive the cross hatch pattern of VGA mode signal by using the signal generator.
   (b) Pin balance, Parallelogram are adjusted the best geometric status.
   (c) Repeat the adjustment at each mode.
5. White Balance Adjustment
   (a) Receive a full white pattern of 60KHz mode.
   (b) Set the bright control and contrast control to the maximum and receive the all black pattern.
   (c) Adjust the G1 control in Factory mode to 0.8 Ft/L.
   (d) Select the R, G, B Bias on the OSD menu and adjust the +/– key to get the color coordinates in X=0.281, Y=0.311.
   (e) If the screen luminosity is changed, repeat (c) & (d) to get the 0.8 Ft/L screen luminosity.
   (f) Set the brightness control to the center and contrast control to the maximum.
   (g) Receive a full white pattern.

(h) Select the R, G, B gain on the OSD menu and adjust the +/– key to get the color coordinates in X=0.281±0.02, Y=0.311±0.02.

(i) Adjust the sub contrast (ABL) control to get the screen luminosity to 30.0 Ft/L.

6. Static Convergence Adjustment

(a) Apply a magenta cross hatch pattern on display.

(b) Adjust the focus from the best over all focus on the display.
Also adjust the brightness to the desired condition.

(c) Vertical red and blue lines are converged by varying the angles between the two tabs of the 4-pole magnets.

(d) Horizontal red and blue lines are converged by varying the tabs together keeping the angle between them constant.

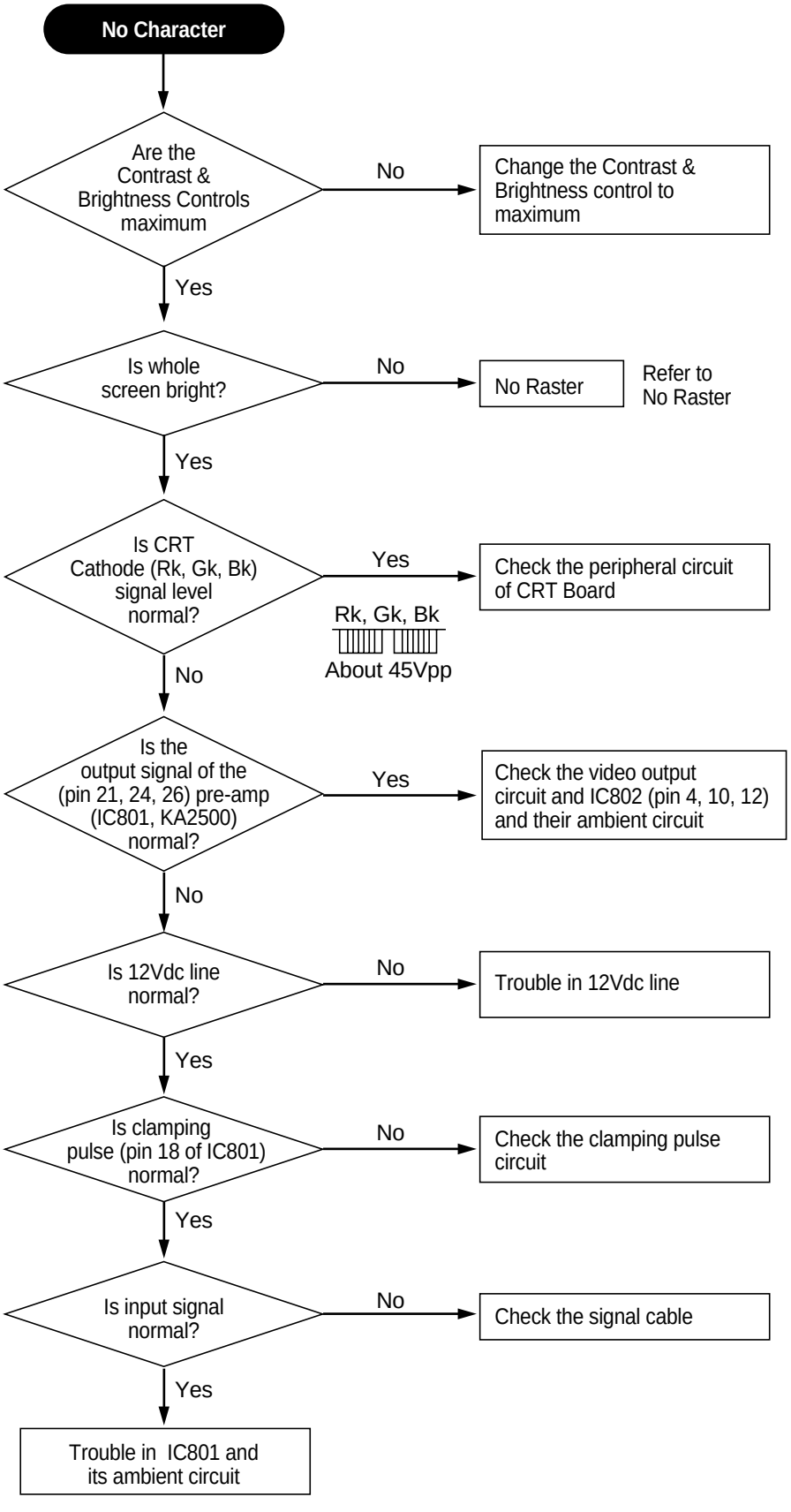
(e) Apply a yellow cross hatch pattern on the display.

(f) Vertical green and red lines are converged by varying the angle between the two tabs of the 6-pole magnets.

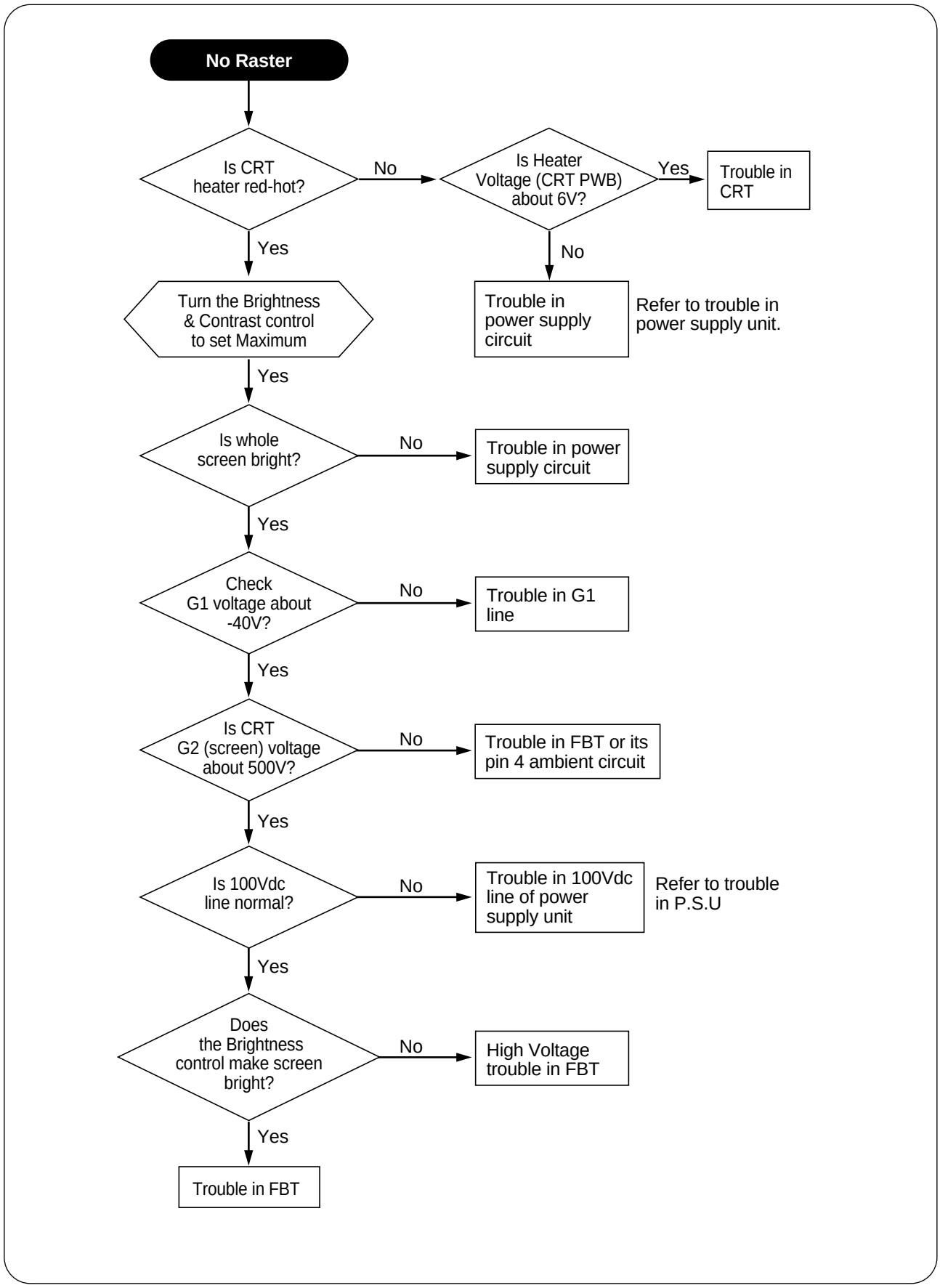
(g) Horizontal green and red lines are converged by varying the tabs together and keeping the angle between them constant.

TROUBLESHOOTING HINTS

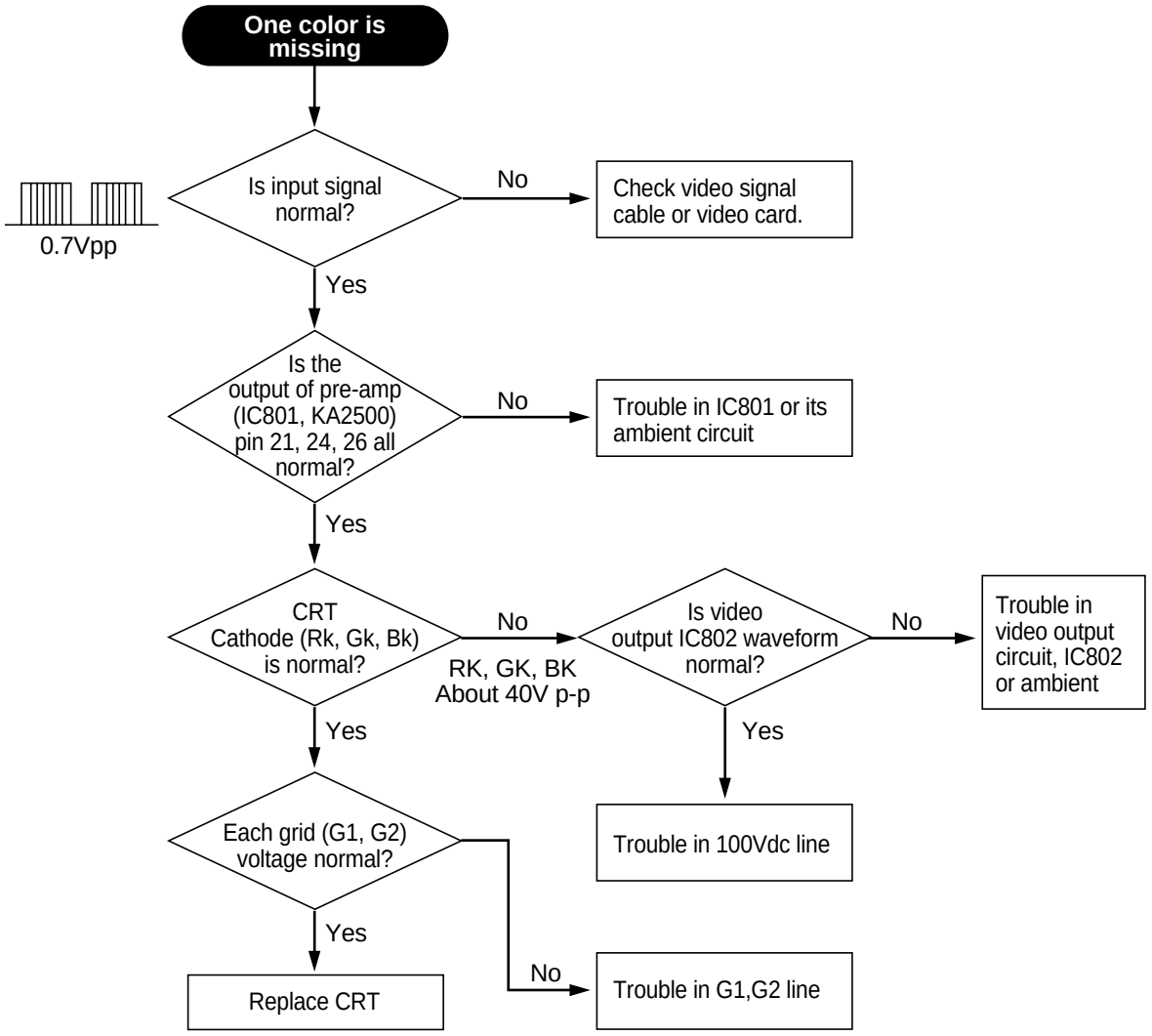
1. No Character



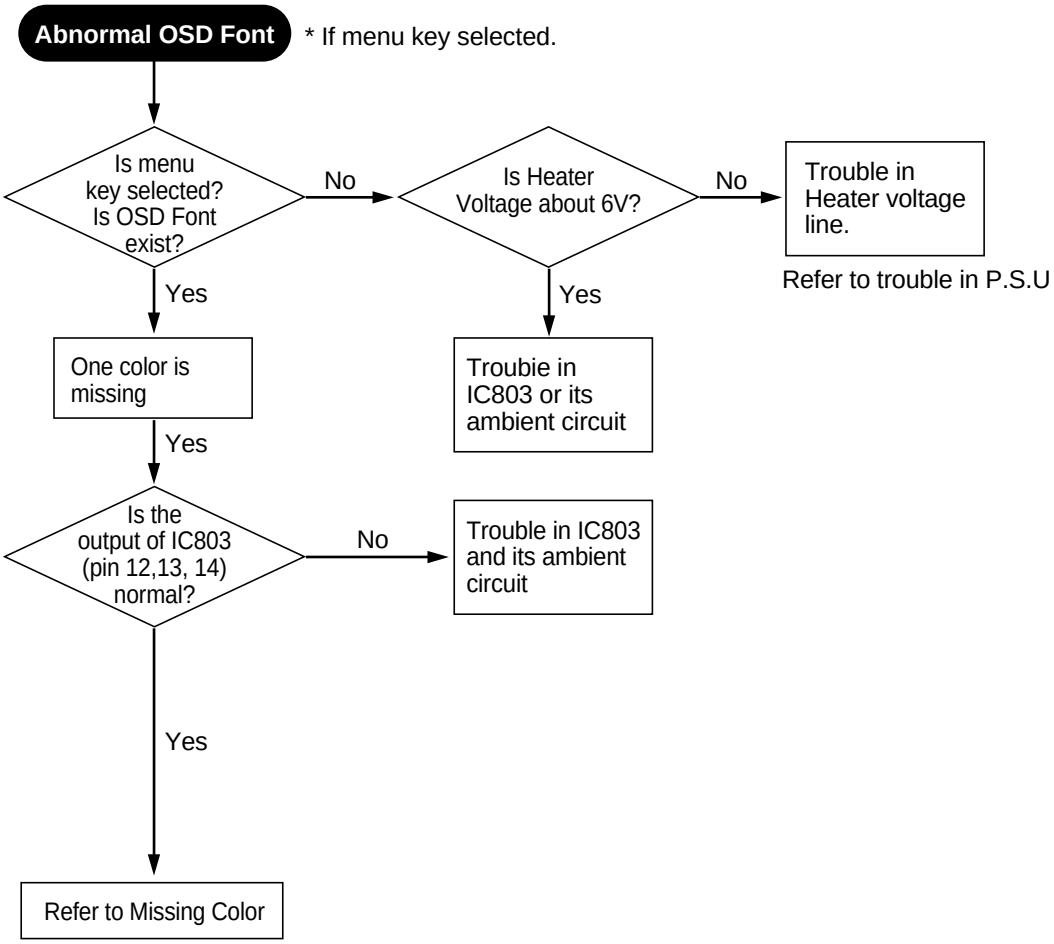
2. No Raster


No Raster
Is CRT heater red-hot?
No
Is Heater Voltage (CRT PWB) about 6V?
Yes
Trouble in CRT
Yes
No
Turn the Brightness & Contrast control to set Maximum
Trouble in power supply circuit
Refer to trouble in power supply unit.
Yes
Is whole screen bright?
No
Trouble in power supply circuit
Yes
Check G1 voltage about -40V?
No
Trouble in G1 line
Yes
Is CRT G2 (screen) voltage about 500V?
No
Trouble in FBT or its pin 4 ambient circuit
Yes
Is 100Vdc line normal?
No
Trouble in 100Vdc line of power supply unit
Refer to trouble in P.S.U
Yes
Does the Brightness control make screen bright?
No
High Voltage trouble in FBT
Yes
Trouble in FBT

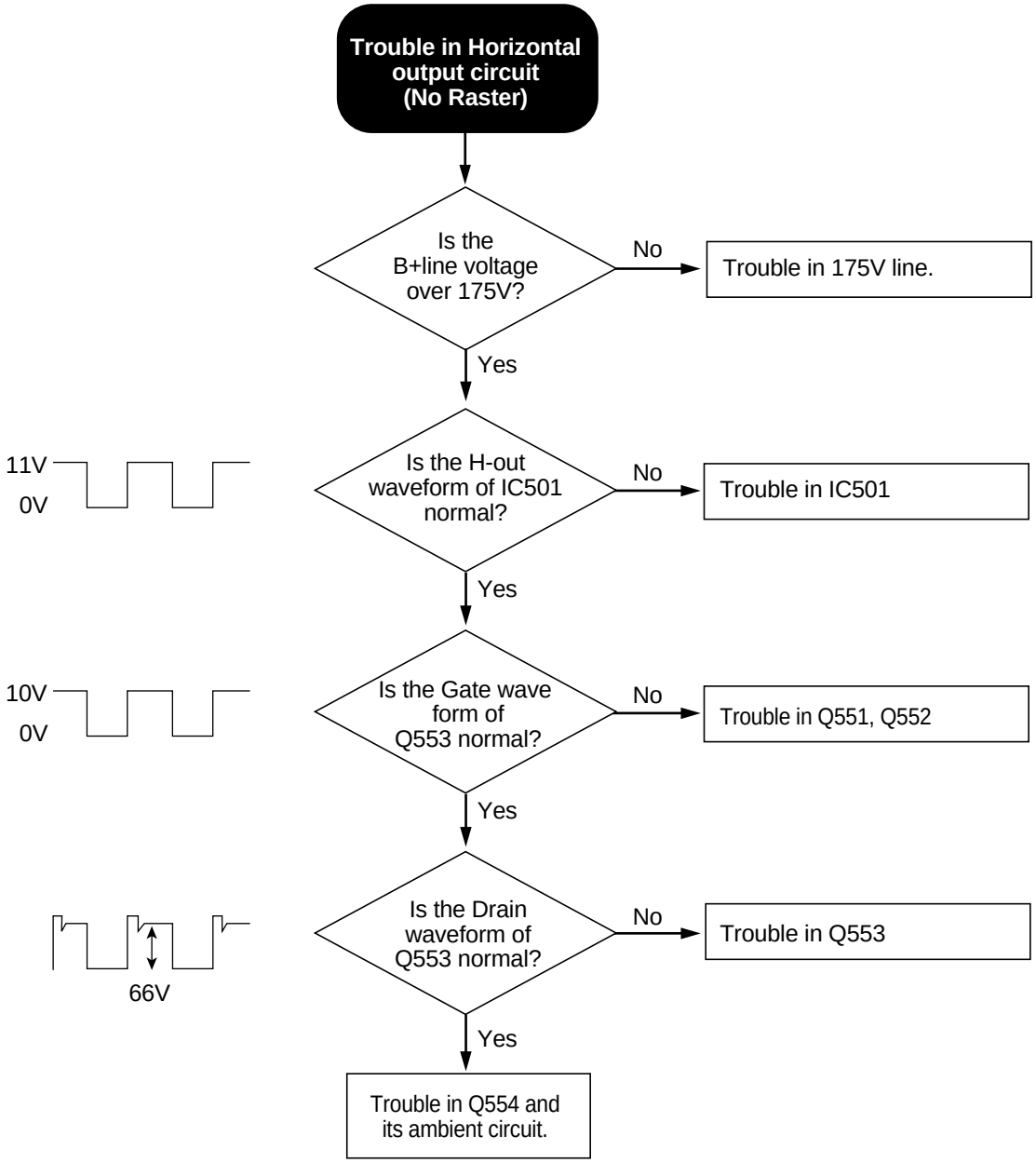
3. A Missing Color



4. Abnormal OSD Font

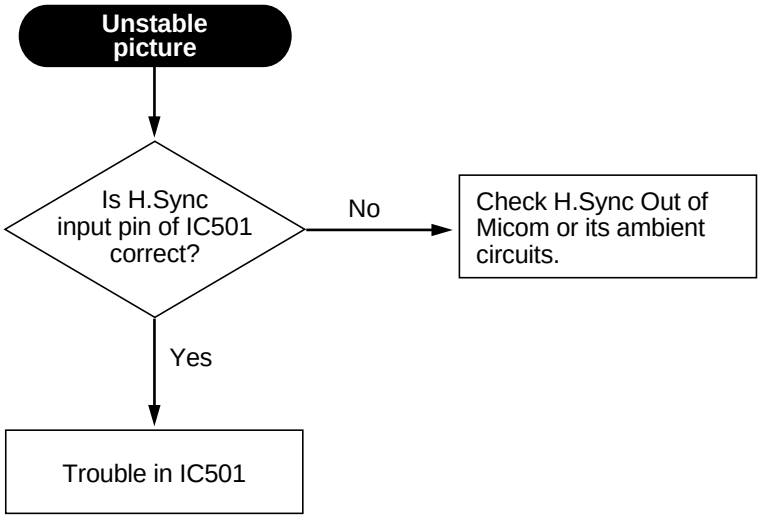


5. Horizontal Output Circuit

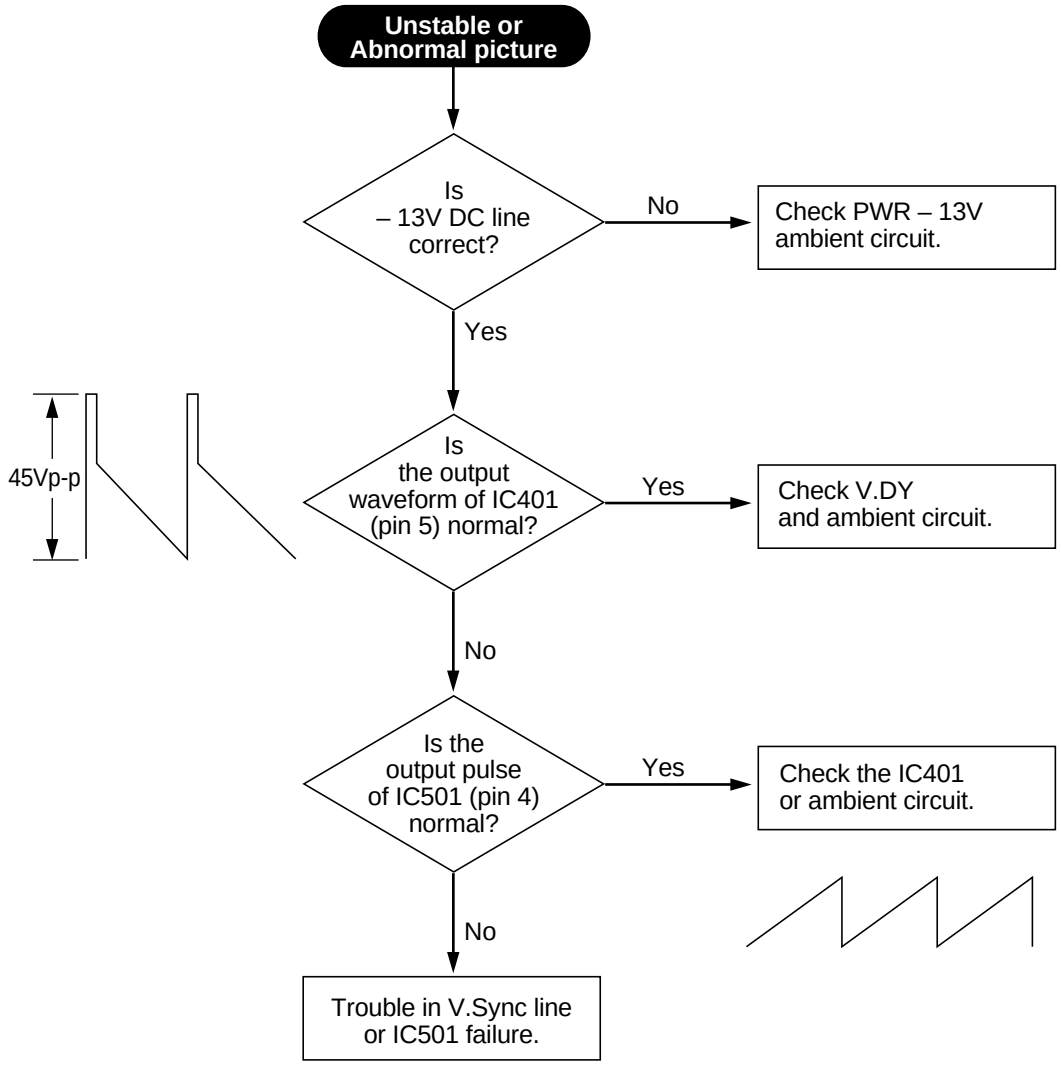


6. Unstable Picture

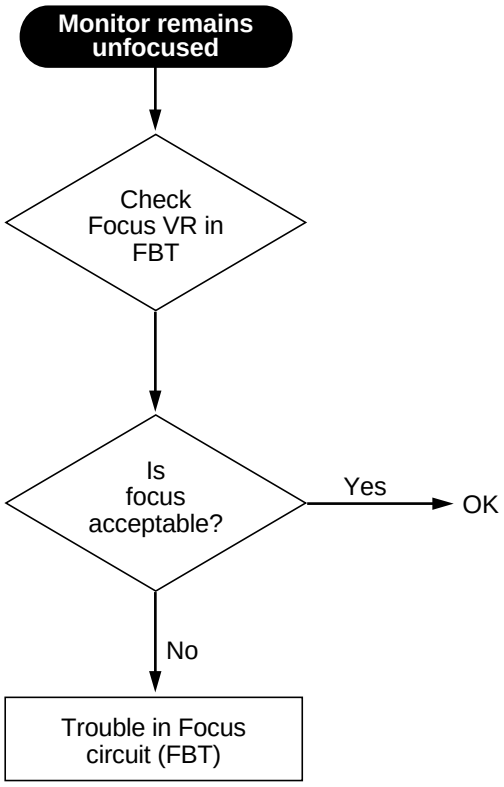
6-1. Horizontal



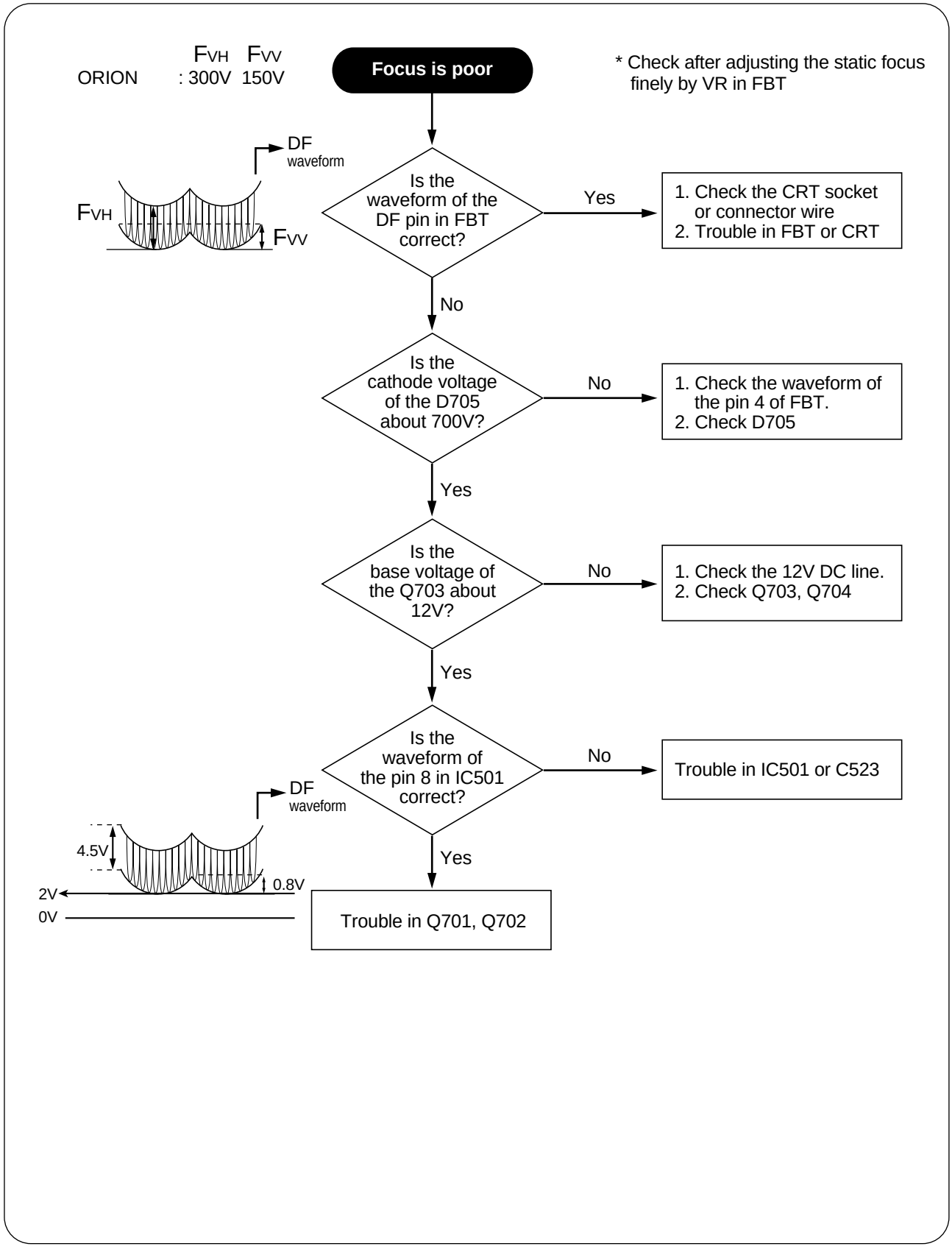
6-2. Vertical


Unstable or Abnormal picture
Is – 13V DC line correct?
No
Check PWR – 13V ambient circuit.
Yes
45Vp-p
Is the output waveform of IC401 (pin 5) normal?
Yes
Check V.DY and ambient circuit.
No
Is the output pulse of IC501 (pin 4) normal?
Yes
Check the IC401 or ambient circuit.
No
Trouble in V.Sync line or IC501 failure.

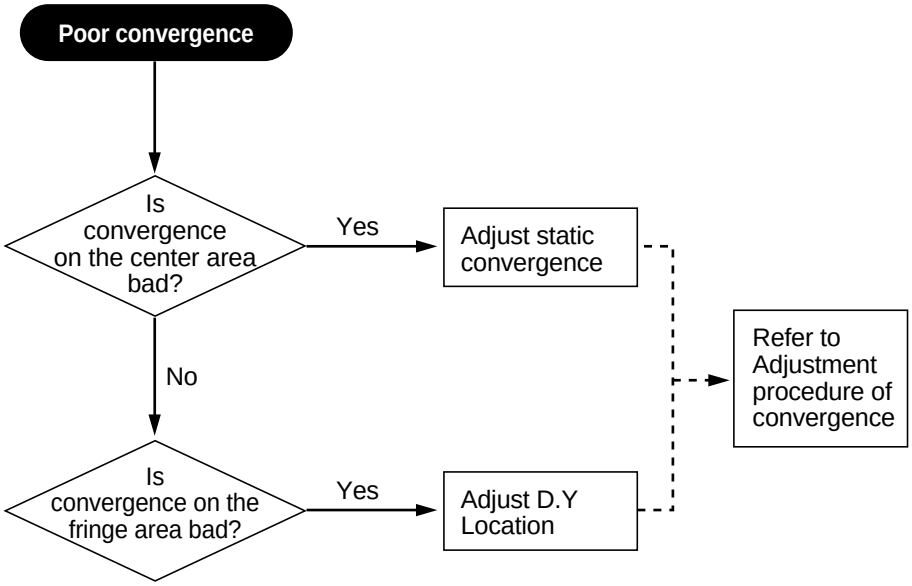
7. Focus


Monitor remains unfocused
Check Focus VR in FBT
Is focus acceptable?
Yes
OK
No
Trouble in Focus circuit (FBT)

7-1. Dynamic Focus

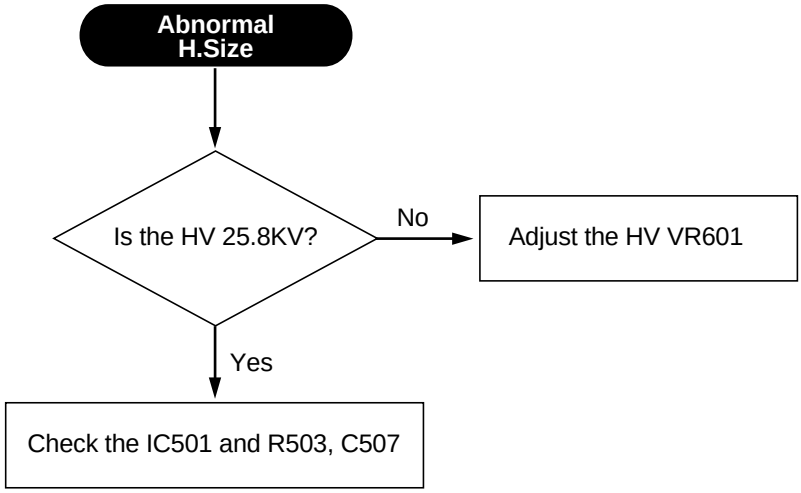


8. Convergence

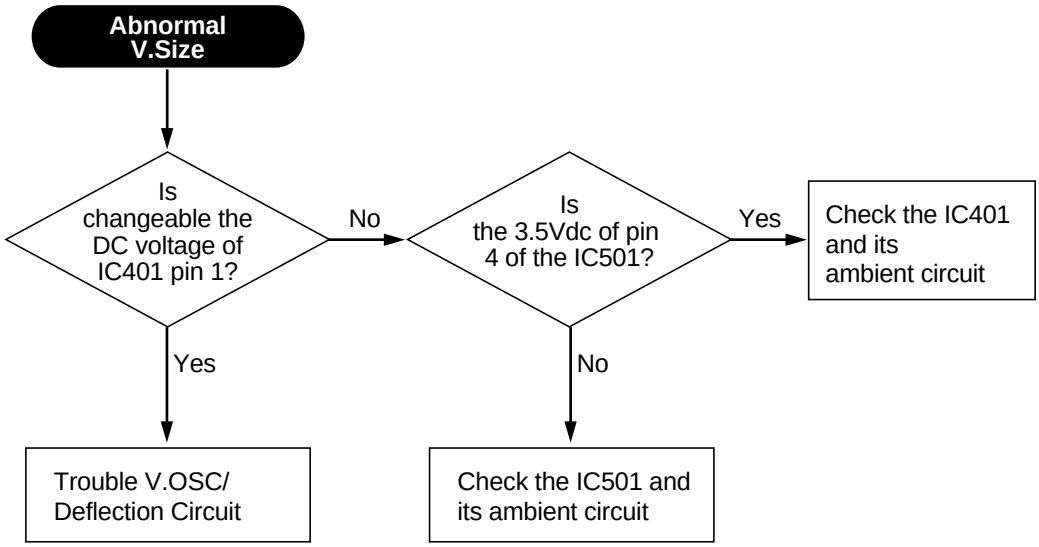


9. Abnormal Picture

9-1. Horizontal Size

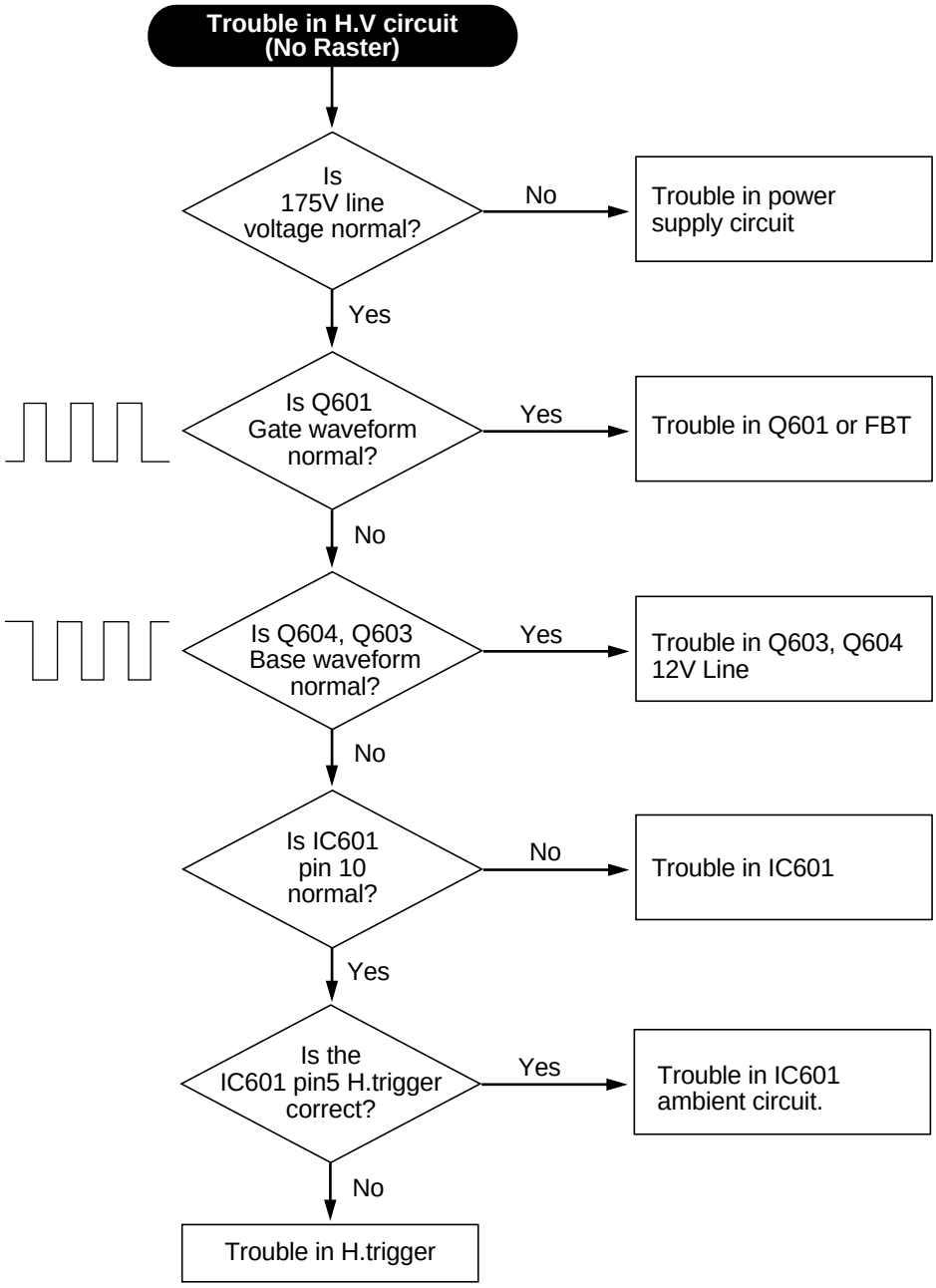


9-2. Vertical Size

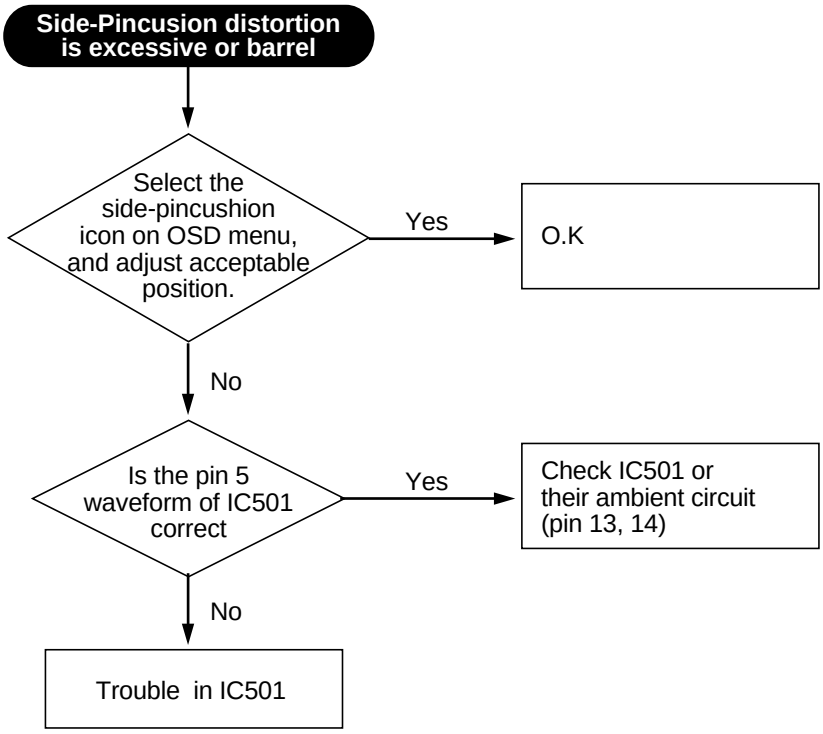

Abnormal V.Size
Is changeable the DC voltage of IC401 pin 1?
No
Is the 3.5Vdc of pin 4 of the IC501?
Yes
Check the IC401 and its ambient circuit
Yes
No
Trouble V.OSC/ Deflection Circuit
Check the IC501 and its ambient circuit

Refer to V.OSC/Deflection circuit

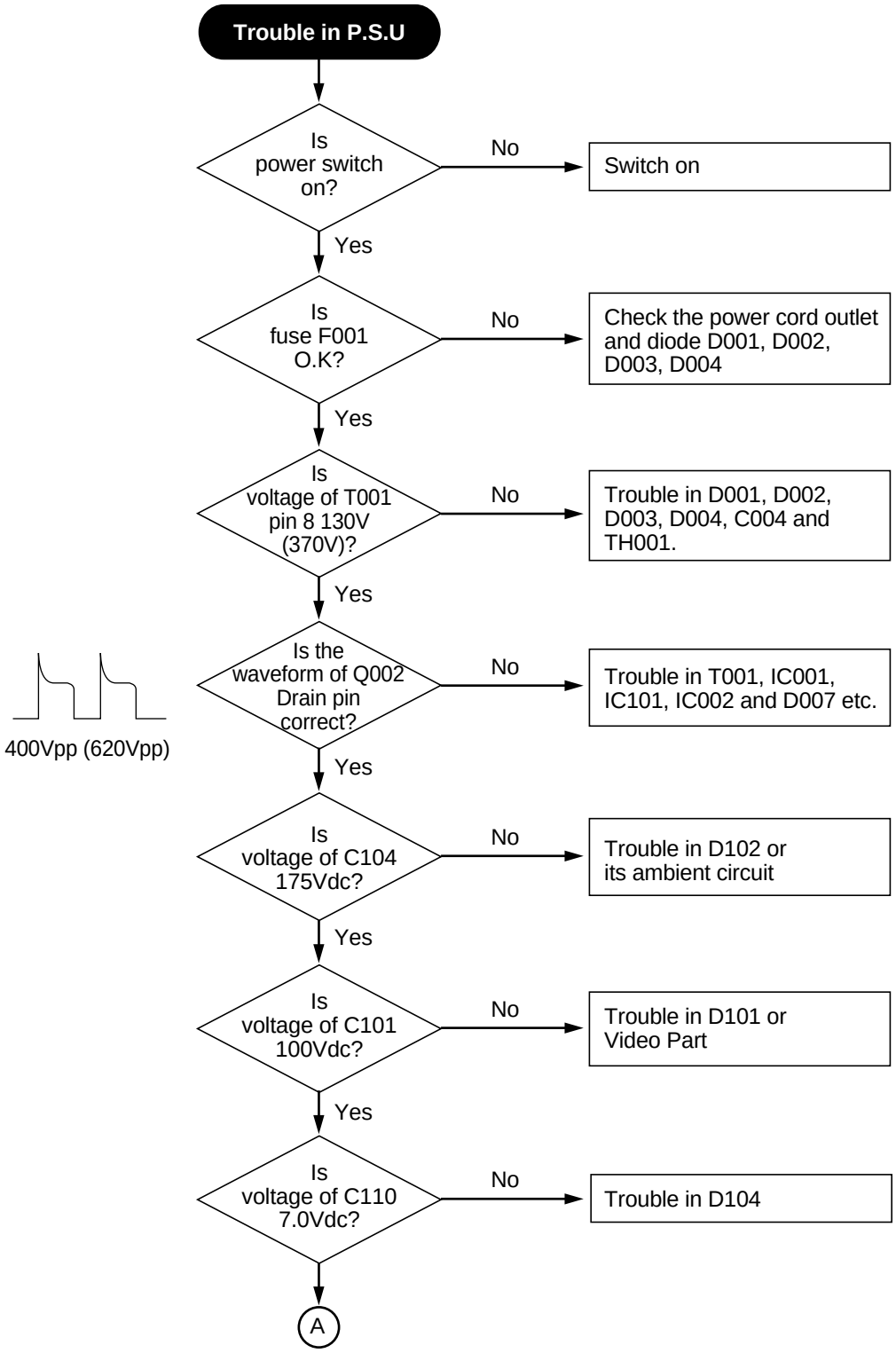
10. High Voltage Output Circuit

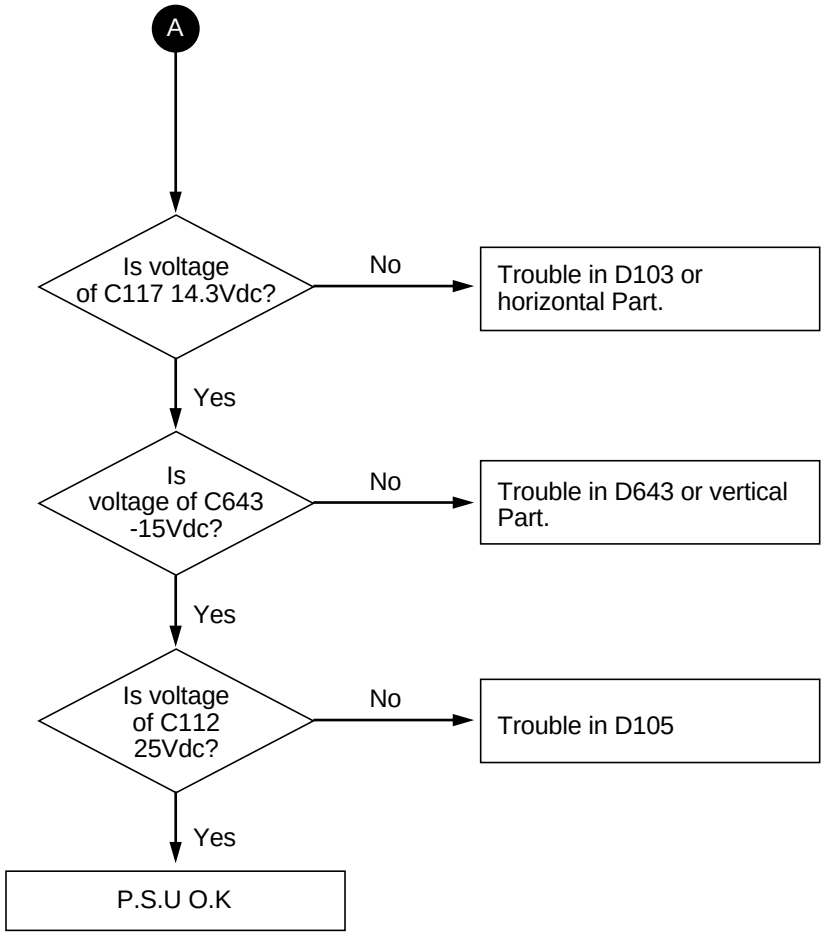


11. Side-Pincushion Circuit

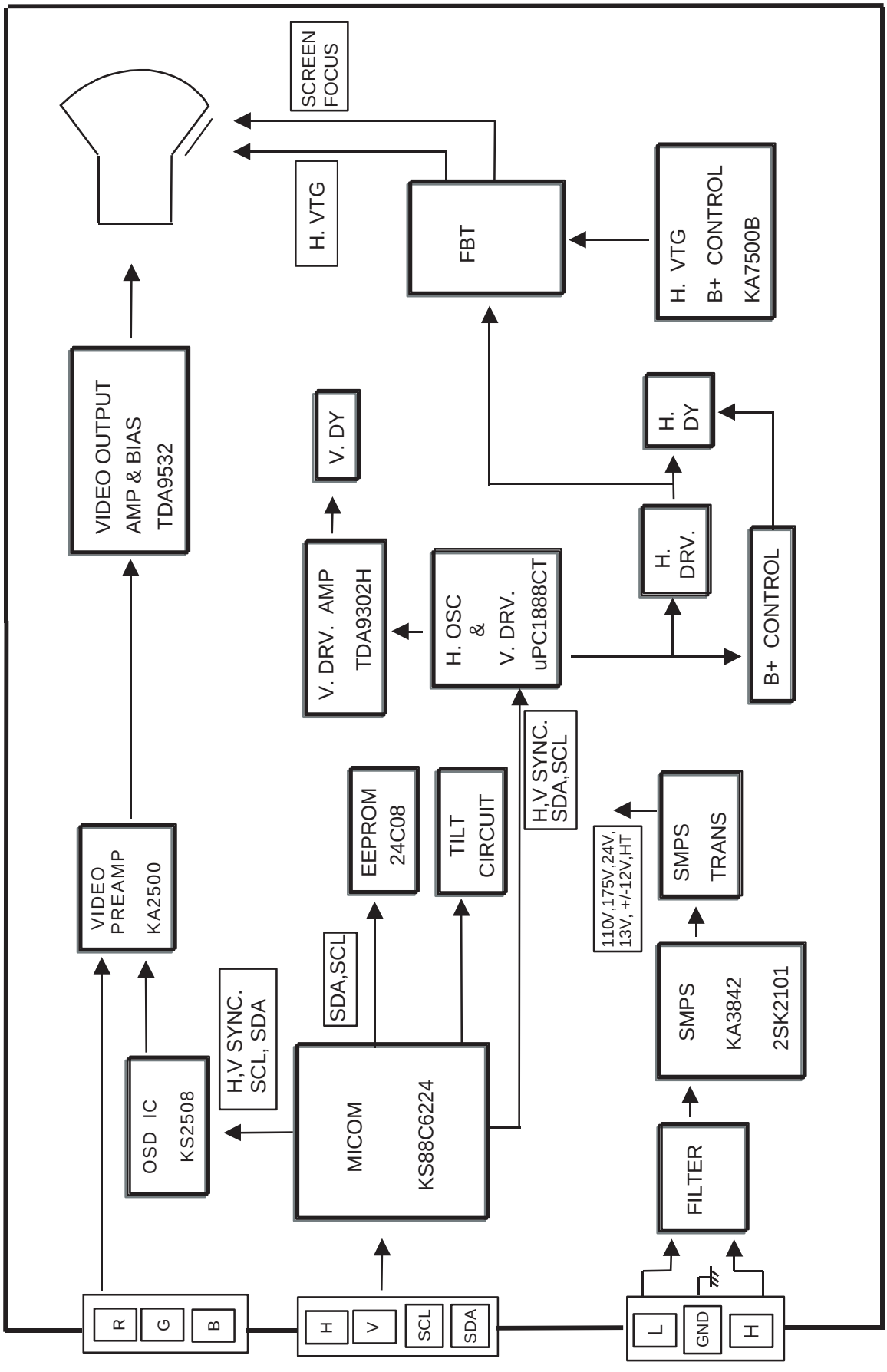

Side-Pincusion distortion is excessive or barrel
Select the side-pincushion icon on OSD menu, and adjust acceptable position.
Yes
O.K
No
Is the pin 5 waveform of IC501 correct
Yes
Check IC501 or their ambient circuit (pin 13, 14)
No
Trouble in IC501

12. Power Supply Unit (P.S.U)

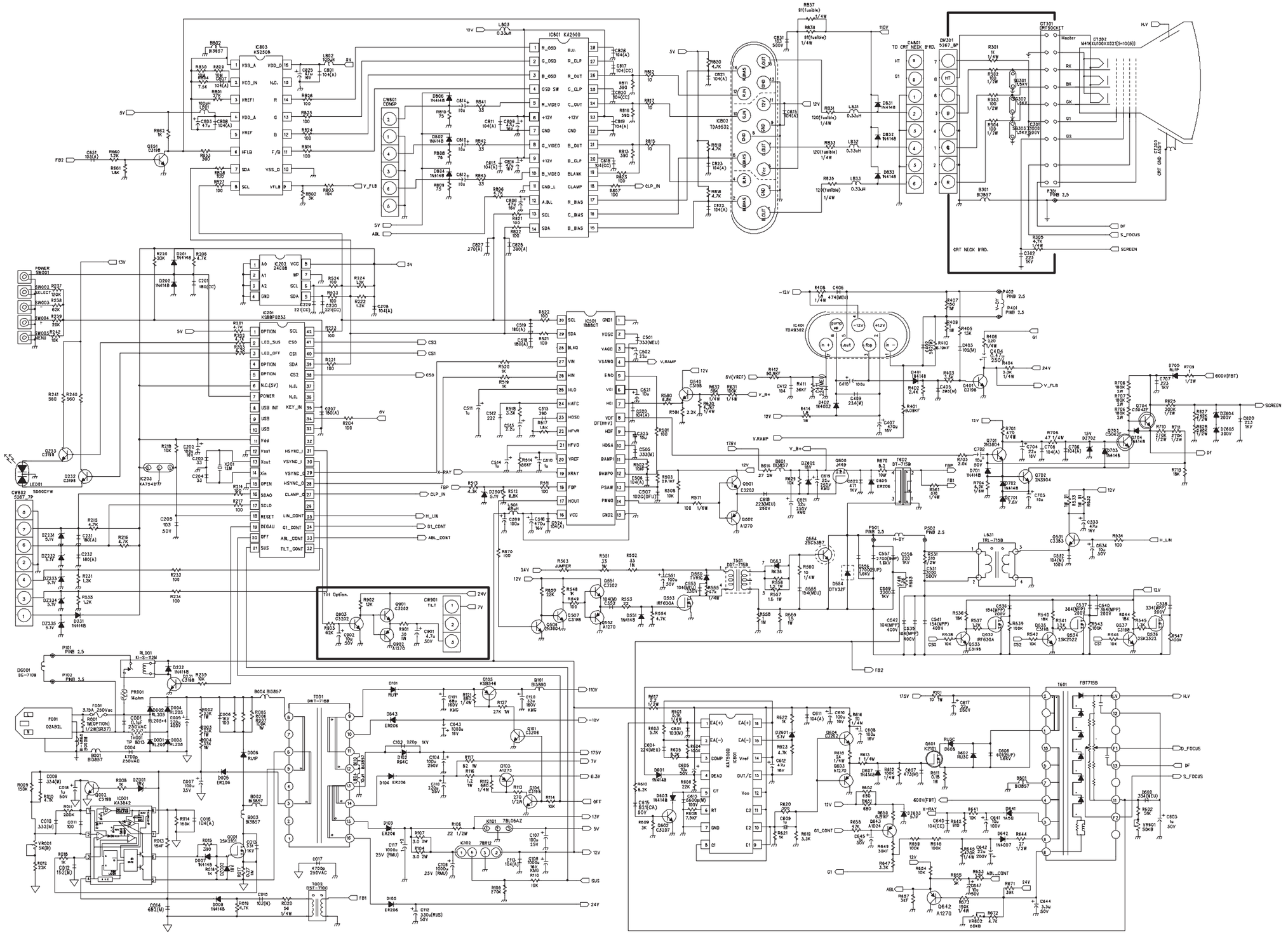



A
Is voltage of C117 14.3Vdc?
No
Trouble in D103 or horizontal Part.
Yes
Is voltage of C643 -15Vdc?
No
Trouble in D643 or vertical Part.
Yes
Is voltage of C112 25Vdc?
No
Trouble in D105
Yes
P.S.U O.K

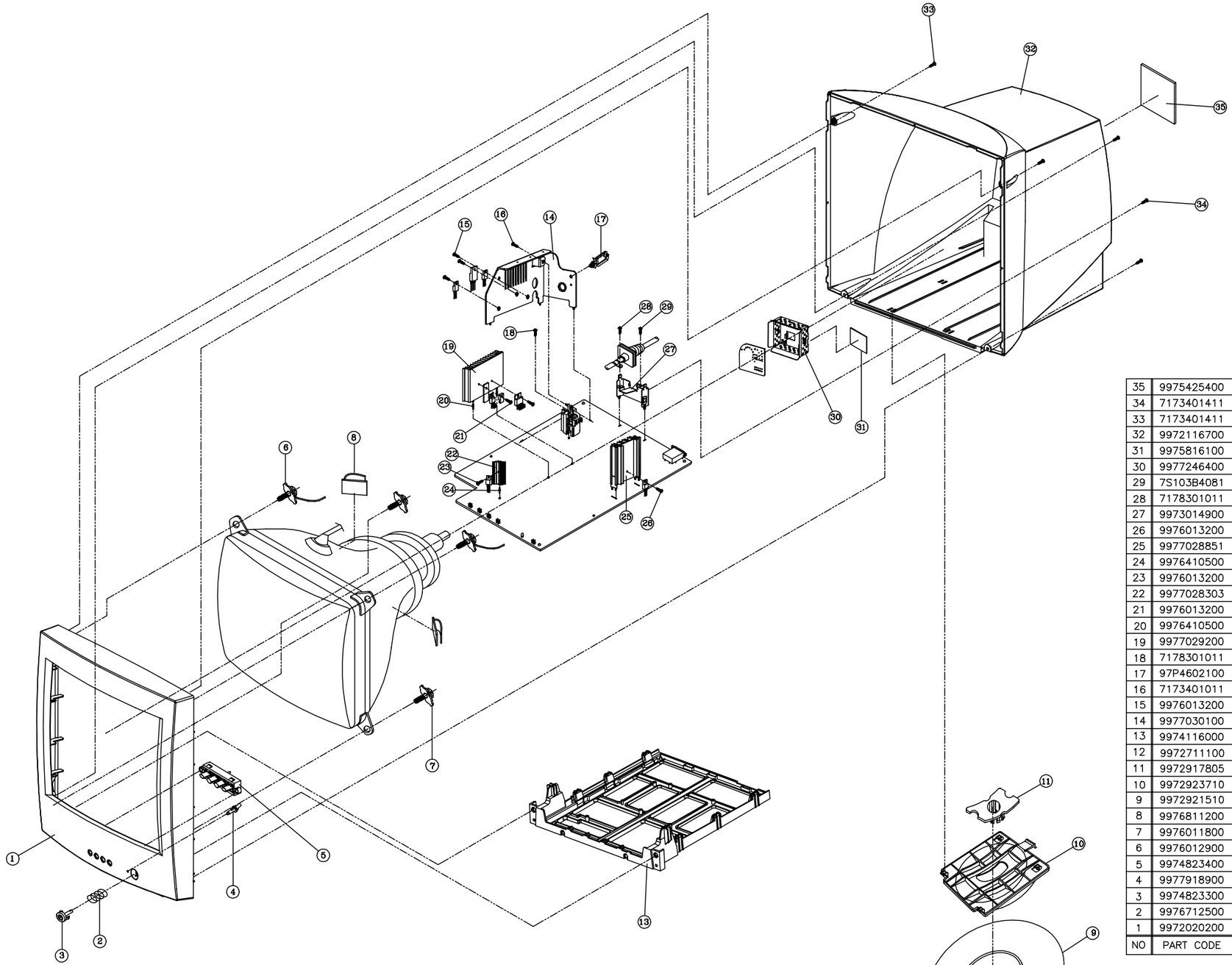
BLOCK DIAGRAM

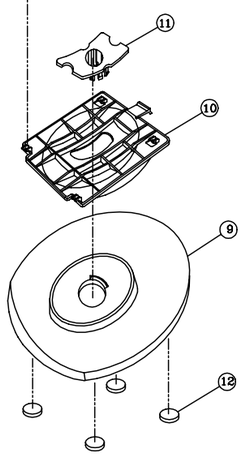


SCHEMATIC DIAGRAM



EXPLODED VIEW & MECHANICAL PARTS LIST





NO	PART CODE	PART NAME	Q'TY	DESCRIPTION	REMARK
35	9975425400	LABEL RATING	1	P.E T=0.1*98*78	
34	7173401411	SCREW TAPPTITE	1	TT2 BIN 4X14 MFZN	
33	7173401411	SCREW TAPPTITE	4	TT2 BIN 4X14 MFZN	
32	9972116700	COVER REAR	1	FR-ABS GY-275A (94-V0)	
31	9975816100	LABEL DHHS	1	STICKER 120P*70*45	
30	9977246400	SHIELD COVER	1	SPTH-C T=0.3	
29	7S103B4081	SCREW SPECIAL	1	M/C BIN 4*8 MFZN	
28	7178301011	SCREW TAPPTITE	1	TT2 WAS 3X10 MFZN	
27	9973014900	BKT REAR	1	EGI T=1.0	
26	9976013200	SCREW SPECIAL	1	TT2 BIN 3*10 MFZN PW(D.7)	
25	9977028851	HEAT SINK 288	1	A1050P-H24 H=70	
24	9976410500	SHAFT	1	SWRM SN PLATE	+ H/S 283
23	9976013200	SCREW SPECIAL	1	TT2 BIN 3*10 MFZN PW(D.7)	
22	9977028303	HEAT SINK 283	1	A1050P-H24 H=39	
21	9976013200	SCREW SPECIAL	2	TT2 BIN 3*10 MFZN PW(D.7)	
20	9976410500	SHAFT	2	SWRM SN PLATE	+ H/S 292
19	9977029200	HEAT SINK 292	1	A1050P-H24 H=60	
18	7178301011	SCREW TAPPTITE	1	TT2 WAS 3X10 MFZN	
17	97P4602100	WIRE SADDLE	1	NYLON 66,DASW-3N	
16	7173401011	SCREW TAPPTITE	1	TT2 BIN 4X10 MFZN	
15	9976013200	SCREW SPECIAL	3	TT2 BIN 3*10 MFZN PW(D.7)	
14	9977030100	HEAT SINK 301	1	A1050P-H24 T=2.0	
13	9974116000	FRAME BOTTOM	1	FR-ABS GY-275A (94-V0)	
12	9972711100	FOOT	4	RUBBER(WHT) 14	
11	9972917805	FRICTION PAD	1	ABS+PC ALLOY GY-275A (94HB)	
10	9972923710	SWIVEL TABLE	1	HIPS GY-275A (94-HB)	
9	9972921510	BASE STAND	1	HIPS GY-275A (94-HB)	
8	9976811200	CLAMP MOUNT	2	NYLON 66 (DAMC-20)	
7	9976011800	SPECIAL SCREW 5	2	TT2 HEX 5*25 MFZN SPW	
6	9976012900	SCREW SPECIAL	2	TT2 HEX 5*25 SCREW+BAND	
5	9974823400	BUTTON TACT	1	ABS GY-275A (94-HB)	
4	9977918900	LENS LED	1	ACRYL (CLEAR)	
3	9974823300	BUTTON POWER	1	ABS GY-275A (94-HB)	
2	9976712500	SPRING	1	SUS(0.5PIE)	
1	9972020200	COVER FRONT	1	FR-ABS GY-275A (94-V0)	

INFORMATION OF PART DESCRIPTION

Important Safety Notice

Components identified with the International Symbol have special characteristics important for safety.
When replacing any components, use only manufacturer's specified parts.

Abbreviation of Description

RESISTOR Description

Allowance	
F	± 1%
J	± 5%
K	± 10%
M	± 20%
G	± 2%

Example:

Fig & Index	Part No	Description
R101	Resistors	
	RD-4Z820J	Carbon: 82J
R102	RD-4Z201J	Carbon1/4W-200J

CAPACITOR Description

Allowance	
C	± 0.25pF
D	± 0.5%
F	± 1pF
J	± 5%
K	± 10%
P	± 100% ~ 0%
Z	± 80% ~ –

Example:

Fig & Index	Part No	Description
	Capacitors	
C102	CCXF1H104Z	Ceramic 50V 0.1µF Z
C402	CCXB1H331K	Ceramic 50V 330PF K
C105	CMXM 2A224J	MYLAR 100V 0.22µF J

ELECTRICAL PARTS LIST

The components identified by mark ⚠ have special characteristics important for safety and x-ray radiation.
These should be replaced only with the types specified in the parts list.

LOC	PART-CODE	PART-NAME	PART-DESC
B001	5PB13890--	COIL BEAD	BI3890
B002	5PB13857--	COIL BEAD	BI3857(AXIAL)
B003	5PB13857--	COIL BEAD	BI3857(AXIAL)
B004	5PB13857--	COIL BEAD	BI3857(AXIAL)
B005M	5PB14865--	COIL BEAD	BI-4865(5TS)
B1	5PB13890--	COIL BEAD	BI3890
B101	5PB13890--	COIL BEAD	BI3890
B102	5PB13857--	COIL BEAD	BI3857(AXIAL)
B103	5PB13857--	COIL BEAD	BI3857(AXIAL)
B106	5PB13857--	COIL BEAD	BI3857(AXIAL)
B110	5PB13890--	COIL BEAD	BI3890
B2	5PB13890--	COIL BEAD	BI3890
B3	5PB13890--	COIL BEAD	BI3890
B301	5PB13857--	COIL BEAD	BI3857(AXIAL)
B601	5PB13857--	COIL BEAD	BI3857(AXIAL)
B801	5PB13857--	COIL BEAD	BI3857(AXIAL)
B802	5PB13857--	COIL BEAD	BI3857(AXIAL)
BXX1	5PB13890--	COIL BEAD	BI3890
BXX2	5PB13890--	COIL BEAD	BI3890
⚠ C001	CL1UC3104M	C LINE ACROSS	WORLD AC250V 0.1UF M R47
⚠ C004	CH1FDF472M	C CERA AC	2.5KV 4700PF M AC250V
⚠ C005	CEYP2G221Z	C ELECTRO	400V SMH 220MF (25.4*40)
C006	CCXE3D103P	C CERA	HIKE 2KV 0.01MF P
C007	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
C009	CMXL2A334J	C MYLAR	MEU 100V 0.33MF J
C010	CMXM2A332J	C MYLAR	100V 3300PF J (TP)
C011	CXCH1H101J	C CERA	50V CH 100PF J (TAPPING)
C012	CMXM2A152J	C MYLAR	100V 1500PF J (TP)
C013	CCXB3A331K	C CERA	1KV B 330PF K (TAPPING)
C014	CMXM2A682J	C MYLAR	100V 6800PF J (TP)
C015	CMXM2A102J	C MYLAR	100V 1000PF J (TP)
C016	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
⚠ C017	CH1FDF472M	C CERA AC	2.5KV 4700PF M AC250V
C018	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C101	CEXF2C680D	C ELECTRO	160V RMU 68MF(12.5*25)
C102	CCXB3A221K	C CERA	1KV B 220PF K (TAPPING)
C104	CEXF2E101V	C ELECTRO	250V RSS 100MF 16X31.5
C107	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP
C108	CEXF1C102D	C ELECTRO	16V RMU 1000MF(10*16) TP
C110	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP
C112	CEXF1H331C	C ELECTRO	50V RUS 330MF(10*20) TP
C113	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C116	CEXF2E220D	C ELECTRO	250V RMU 22MF (10*20)
C117	CEXF1E102D	C ELECTRO	25V RMU 1000MF (10*20)
C120	CEXF2C330D	C ELECTRO	160V RMU 33MF(10*20)
C201	CCXB1H181K	C CERA	50V B 180PF K (TAPPING)
C202	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C203	CXCH1H330J	C CERA	50V CH 33PF J (TAPPING)

LOC	PART-CODE	PART-NAME	PART-DESC
C204	CXCH1H330J	C CERA	50V CH 33PF J (TAPPING)
C205	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)
C207	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C208	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C229	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)
C230	CCXB1H221K	C CERA	50V B 220PF K (TAPPING)
C231	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C232	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C301	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
C302	CCXF3A223Z	C CERA	HIKF 1KV 0.022MF Z
C402	CMXM2A562J	C MYLAR	100V 5600PF J (TP)
C403	CMXM2A102J	C MYLAR	100V 1000PF J (TP)
C404	CEXF2E478V	C ELECTRO	RSS 250V 0.47MF 6.3X11
C405	CMXM2A393J	C MYLAR	100V 0.039MF J (TP)
C406	CMXL2A474J	C MYLAR	MEU 100V 0.47MF J
C407	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP
C409	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C410	CEXF1H101V	C ELECTRO	50V RSS 100MF (8X11.5) TP
C411	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C412	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C501	CMXL2A333J	C MYLAR	100V MEU 0.033MF J (TP)
C502	CEXF1H220V	C ELECTRO	50V RSS 22MF (5X11) TP
C505	CMXM2A333J	C MYLAR	100V 0.033MF J (TP)
C506	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C507	CMXD2A102G	C MYLAR	KD 100V 1000PF G
C509	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C510	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C511	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C512	CCXB1H222K	C CERA	50V B 2200PF K (TAPPING)
C513	CCXB1H391K	C CERA	50V B 390PF K (TAPPING)
C514	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C515	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C516	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP
C518	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C519	CCZB1H181K	C CERA	50V B 180PF K AXIAL
C520	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C521	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C522	CCXB3A471K	C CERA	1KV B 470PF K (T)
C523	CEXD1H100F	C ELECTRO	50V RND 10MF (8X11.5) TP
C524	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C531	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
C532	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
C533	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C534	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C535	CMXF2G154J	C MYLAR	MPP 400V 0.15MF J
C536	CMXF2D184J	C MYLAR	MPP 200V 0.18MF J (TP)
C537	CMXF2D364J	C MYLAR	200V MPP 0.36MF J (TP)
C538	CMXF2D334J	C MYLAR	200V MPP 0.33MF J (TP)

LOC	PART-CODE	PART-NAME	PART-DESC
C540	CMXF2D364J	C MYLAR	200V MPP 0.36MF J (TP)
C541	CMXF2G154J	C MYLAR	MPP 400V 0.15MF J
C542	CMXF2G104J	C MYLAR	MPP 400V 0.1MF J
C551	CEXF1H101V	C ELECTRO	50V RSS 100MF (8X11.5) TP
C552	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)
C553	CMXL2E104J	C MYLAR	MEU 250V 0.1MF J
C555	CMXL2A154J	C MYLAR	MEU 100V 0.15MF J
C556	CMXH3C272J	C MYLAR	BUP 1.6KV 2700PF J (TP)
C557	CMXH3C272J	C MYLAR	BUP 1.6KV 2700PF J (TP)
C558	CCXB3A221K	C CERA	1KV B 220PF K (TAPPING)
C559	CCXB3A222K	C CERA	HIKB 1KV 2200PF K
C601	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)
C602	CMXL2A334J	C MYLAR	MEU 100V 0.33MF J
C603	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C604	CMXL2A224J	C MYLAR	100V MEU 0.22MF J
C605	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C606	CMXH3C601J	C MYLAR	BUP 1.6KV 600PF J
C607	CMXM2A473J	C MYLAR	100V 0.047MF J (TP)
C608	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C609	CEXD1H109F	C ELECTRO	50V RND 1MF (5X11) TP
C610	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C611	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C612	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C613	CMXM2A562G	C MYLAR	100V 5600PF G (TP)
C615	CCZB1H821K	C CERA	50V B 820PF K
C617	CEXF2E220V	C ELECTRO	250V RSS 22MF (13X20) TP
C618	CMXL2E223J	C MYLAR	MEU 250V 0.022MF J(TP)
C619	CEXF2E220D	C ELECTRO	250V RMU 22MF (10*20)
C620	CCXF3A223Z	C CERA	HIKF 1KV 0.022MF Z
C621	CEXF1E102D	C ELECTRO	25V RMU 1000MF (10*20)
C640	CCXF1H104Z	C CERA	50V F 0.1MF Z
C641	CEXF2A100V	C ELECTRO	100V RSS 10MF (6.3X11) TP
C642	CEXF2D220V	C ELECTRO	200V RSS 22MF (10X20)
C643	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
C644	CEXF1H339V	C ELECTRO	50V RSS 3.3MF (5X11) TP
C645	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C647	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C651	CCZF1H103Z	C CERA	50V F 0.01MF Z
C702	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C703	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C704	CEXF1C220V	C ELECTRO	RSS 16V 22MF 5*11
C705	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C706	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C707	CCXF3A223Z	C CERA	HIKF 1KV 0.022MF Z
C801	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C803	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C806	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C807	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C808	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C809	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C810	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP

LOC	PART-CODE	PART-NAME	PART-DESC
C811	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C812	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C813	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C814	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C815	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C816	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C817	CCXF1H104Z	C CERA	50V F 0.1MF Z
C818	CCXF1H104Z	C CERA	50V F 0.1MF Z
C819	CCXF1H104Z	C CERA	50V F 0.1MF Z
C820	CCXF1H104Z	C CERA	50V F 0.1MF Z
C821	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C822	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C823	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C825	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C826	CCZF1H104Z	C CERA	50V HIKF 0.1MF Z
C827	CCZB1H271K	C CERA	50V B 270PF K
C828	CCZB1H391K	C CERA	50V B 390PF K
C831	CCXF2H103Z	C CERA	HIKF 500V 0.01MF Z
CA801	9970780032	CONN AS	SMH250+51088+20379#28=250
⚠ CT301	9979300008	SOCKET CRT	033 0 7700 44
⚠ CT302	9979617037	CDT	M41KXU100XX021 (5X10(5))
CT303	9970710241	CRT GND AS	0.12*5*24+BL101NG*2=660
CW301	9979220009	CONN WAFER	SMW250-08
CW801	485923272S	CONN WAFER	5267-06A STICK TYPE
CW802	485923282S	CONN WAFER	5267-07A STICK TYPE
CXX1	CCXF1H104Z	C CERA	50V F 0.1MF Z
⚠ D001	DRL205----	DIODE	RL205
⚠ D002	DRL205----	DIODE	RL205
⚠ D003	DRL205----	DIODE	RL205
⚠ D004	DRL205----	DIODE	RL205
D005	DER206----	DIODE	ER206
D006	DRU1P-----	DIODE	RU 1P (TAPPING)
D007	DZN4148---	DIODE	1N4148 AUTO 52MM
D008	DZN4148---	DIODE	1N4148 AUTO 52MM
D101	DRU1P-----	DIODE	RU 1P (TAPPING)
D102	DRG4C-----	DIODE	RG4C LF-L1
D103	DER206----	DIODE	ER206
D104	DER206----	DIODE	ER206
D105	DER206----	DIODE	ER206
D201	DZN4148---	DIODE	1N4148 AUTO 52MM
D202	DZN4148---	DIODE	1N4148 AUTO 52MM
D231	DZN4148---	DIODE	1N4148 AUTO 52MM
D232	DZN4148---	DIODE	1N4148 AUTO 52MM
D401	DZN4148---	DIODE	1N4148 AUTO 52MM
D402	D1N4002A--	DIODE	1N4002
D550	DTVR1G----	DIODE	TVR1G TPA1
D551	DZN4148---	DIODE	1N4148 AUTO 52MM
D553	DRK36-----	DIODE	RK36
D554	DDTV32F---	DIODE	DTV32F
D601	DZN4148---	DIODE	1N4148 AUTO 52MM
D602	DRU3C-----	DIODE	RU 3C

LOC	PART-CODE	PART-NAME	PART-DESC
D603	DZN4148---	DIODE	1N4148 AUTO 52MM
D605	DER206----	DIODE	ER206
D607	DZN4148---	DIODE	1N4148 AUTO 52MM
D608	DRU3C------	DIODE	RU 3C
D641	D1A5G------	DIODE	1A5G
D642	D1N4007---	DIODE	IN4007
D643	DER206----	DIODE	ER206
D701	DZN4148---	DIODE	1N4148 AUTO 52MM
D702	DZN4148---	DIODE	1N4148 AUTO 52MM
D703	DZN4148---	DIODE	1N4148 AUTO 52MM
D704	DZN4148---	DIODE	1N4148 AUTO 52MM
D705	DRU1P------	DIODE	RU 1P (TAPPING)
D802	DZN4148---	DIODE	1N4148 AUTO 52MM
D804	DZN4148---	DIODE	1N4148 AUTO 52MM
D806	DZN4148---	DIODE	1N4148 AUTO 52MM
D831	DZN4148---	DIODE	1N4148 AUTO 52MM
D832	DZN4148---	DIODE	1N4148 AUTO 52MM
D833	DZN4148---	DIODE	1N4148 AUTO 52MM
⚠ DG001	5MG0000062	COIL DEGAUSSING	DG-710B
DZ001	DGDZJ18C--	DIODE ZENER	GDZJ 18C
DZ002	DGDZJ18C--	DIODE ZENER	GDZJ 18C
DZ231	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ232	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ233	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ234	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ235	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ501	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ601	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ602	DGDZJ18C--	DIODE ZENER	GDZJ 18C
DZ603	DDZ5R1B---	DIODE ZENER	DZ-5.1B
DZ604	DZ200A-----	DIODE	Z200A
DZ605	DZ300A-----	DIODE	Z300A
DZ701	DDZ7R5BM--	DIODE ZENER	DZ7.5BM
DZ702	DDZ15BM---	DIODE ZENER	DZ15BM
⚠ F001	5F3CB3122L	FUSE CERA	SEMKO TL 3.15AH 250V MF51
F001A	4857415001	CLIP FUSE	PFC5000-0702
F001B	4857415001	CLIP FUSE	PFC5000-0702
I102A	1KA78R12--	IC REGULATOR	KA78R12
I401A	1TDA9302H-	IC VERTICAL	TDA9302H
I802A	1TDA9532--	IC VIDEO OUTPUT	TDA9532
IC001	1KA3842B--	IC POWER	KA3842B
IC101	1KA78L05AZ	IC REGULATOR	KA78L05AZ
IC201	1KS88P6232	IC MICOM	KS88P6232N
IC202	124C08-----	IC EEPROM	24C08
IC203	1KA7542---	IC VOTAGE DETECTOR	KA7542
IC501	1UPC1888CT	IC H/V OSC	UPC1888CT
IC601	1KA7500B--	IC	KA7500B
IC801	1KA2500---	IC	KA2500
IC803	1DW0SD10--	IC OSD	KS2508-02
JXX2	9970710238	CONN AS	1007#24+SOLDER=80
L501	5CPZ680K03	COIL PEAKING	68UH K (AXIAL 7MM)

LOC	PART-CODE	PART-NAME	PART-DESC
L531	5MH0000075	COIL H-LINEARITY	TRL-715B
L801	5CPZ101K02	COIL PEAKING	100UH K (AXIAL 3.5MM)
L802	5CPZ101K02	COIL PEAKING	100UH K (AXIAL 3.5MM)
L803	5CPZ338K02	COIL PEAKING	0.33UH K (AXIAL 3.5MM)
L804	5CPZ100K02	COIL PEAKING	10UH K (AXIAL 3.5MM)
L831	5CPZ338K02	COIL PEAKING	0.33UH K (AXIAL 3.5MM)
L832	5CPZ338K02	COIL PEAKING	0.33UH K (AXIAL 3.5MM)
L833	5CPZ338K02	COIL PEAKING	0.33UH K (AXIAL 3.5MM)
LED01	DSD50GYW--	LED	SD50GYW(GREEN/AMBER)
⚠ P001	9979500023	RECEPTACLE	BNS-02AB2L-3
P804A	9970710226	CONN AS	35068+1015#18+BL101NG=250
PCB1	9979800515	PCB MAIN	T=1.6*246*330
⚠ PR001	DECPAC140M	POSISTOR	ECPAC140M290
⚠ Q001A	T2SK2101--	FET	2SK2101
Q002	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q101	TZTC3206Y-	TR	KTC3206Y (2229Y)
Q103	TKTA1273Y-	TR	KTA1273-Y
Q104	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q105	TKSB546Y--	TR	KSB546-Y
Q231	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q232	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q233	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q401	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q501	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
Q502	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q506	T2N3904---	TR	2N3904
Q507	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q531	TKSC2383Y-	TR	KSC 2383-Y
Q532	T1RF630A--	FET	IRF630A
Q533	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q534	T2SK2522--	FET	2SK2522-01MR
Q535	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q536	T2SK2522--	FET	2SK2522-01MR
Q537	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q540	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q551	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
Q552	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q553	T1RF630A--	FET	IRF630A
Q554A	T2SC5387--	TR H.OUT	2SC5387
Q554D	9970710234	CONN AS	0.12*6*16+35068+35750=170
Q601	T2SK2101--	FET	2SK2101
Q602	TZTC3207--	TR	KTC3207 (AUTO)
Q603	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q604	TZTC3202Y-	TR	KTC3202Y (AUTO)(1959Y)
Q605A	T2SJ449---	TR	2SJ449
Q642	TZTA1270Y-	TR	KTA1270Y(AUTO)(562Y)
Q643	TZTA1024Y-	TR	KTA1024Y (949Y)
Q651	TZTC3198Y-	TR	KTC3198Y-(1815Y) (AUTO)
Q701	T2N3904---	TR	2N3904
Q702	T2N3904---	TR	2N3904
Q703	TKSC5042F-	TR	KSC5042F

LOC	PART-CODE	PART-NAME	PART-DESC
Q704	TKSC5042F-	TR	KSC5042F
⚠ R001	RC-2Z105J-	R CARBON COMP	1/2 1M OHM J SR37
R002	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R003	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R004	RS01Z333J-	R M-OXIDE FILM	1W 33K OHM J (TAPPING)
R005	RS01Z104J-	R M-OXIDE FILM	1W 100K OHM J (TAPPING)
R006	RS01Z104J-	R M-OXIDE FILM	1W 100K OHM J (TAPPING)
R007	RS01Z104J-	R M-OXIDE FILM	1W 100K OHM J (TAPPING)
R008	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R009	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R010	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R011	RD-AZ204J-	R CARBON FILM	1/6 200K OHM J
R012	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R013	RN-AZ1502F	R METAL FILM	1/6 15K OHM F
R014	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R015	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R016	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R017	RW01Z278JN	R WIRE WOUND	1W 0.27 OHM J NON-INDUCT
R018	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R019	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R020	RD-4Z560J-	R CARBON FILM	1/4 56 OHM J
R101	RS01Z100J-	R M-OXIDE FILM	1W 10 OHM J (TAPPING)
R104	RS02Z309J-	R M-OXIDE FILM	2W 3 OHM J (TAPPING)
R106	RD-2Z220J-	R CARBON FILM	1/2 22 OHM J
R107	RS02Z309J-	R M-OXIDE FILM	2W 3 OHM J (TAPPING)
R109	RD-AZ274J-	R CARBON FILM	1/6 270K OHM J
R110	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R112	RD-4Z681J-	R CARBON FILM	1/4 680 OHM J
R113	RD-2Z271J-	R CARBON FILM	1/2 270 OHM J
R114	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R116	RS01Z129J-	R M-OXIDE FILM	1W 1.2 OHM J (TAPPING)
R121	RD-4Z681J-	R CARBON FILM	1/4 680 OHM J
R127	RS01Z273J-	R M-OXIDE FILM	1W 27K OHM J (TAPPING)
R202	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R203	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R204	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R206	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R214	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R215	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R216	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R217	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R218	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R220	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R221	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R222	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R223	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R224	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R231	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R232	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R233	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R234	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R235	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R237	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J
R238	RD-AZ623J-	R CARBON FILM	1/6 62K OHM J
R239	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R240	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R241	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R242	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R301	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J
R302	RD-2Z101J-	R CARBON FILM	1/2 100 OHM J
R303	RD-2Z101J-	R CARBON FILM	1/2 100 OHM J
R304	RD-2Z101J-	R CARBON FILM	1/2 100 OHM J
R305	RD-4Z472J-	R CARBON FILM	1/4 4.7K OHM J
R401	RN-AZ9091F	R METAL FILM	1/6 9.09K OHM F
R402	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J
R403	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R404	RD-4Z332J-	R CARBON FILM	1/4 3.3K OHM J
R405	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R406	RD-4Z221J-	R CARBON FILM	1/4 220 OHM J
R407	RS01Z151J-	R M-OXIDE FILM	1W 150 OHM J (TAPPING)
R408	RD-4Z159J-	R CARBON FILM	1/4 1.5 OHM J
R409	RS01Z109J-	R M-OXIDE FILM	1W 1 OHM J (TAPPING)
R410	RN-AZ6191F	R METAL FILM	1/6 6.19K OHM F
R411	RN-AZ3652F	R METAL FILM	1/6 36.5K OHM F
R412	RN-AZ9092F	R METAL FILM	1/6 90.9K OHM F
R414	RS01Z189J-	R M-OXIDE FILM	1W 1.8 OHM J (TAPPING)
R501	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R502	RN-AZ1002F	R METAL FILM	1/6 10K OHM F
R503	RN-AZ2912F	R METAL FILM	1/6 29.1K OHM F
R508	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R511	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R512	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R513	RD-AZ432J-	R CARBON FILM	1/6 4.3K OHM J
R514	RN-AZ5602F	R METAL FILM	1/6 56K OHM F
R517	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J
R518	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R519	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R520	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R521	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R522	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R523	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R524	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R531	RD-2Z511J-	R CARBON FILM	1/2 510 OHM J
R532	RS01Z910J-	R M-OXIDE FILM	1W 91 OHM J (TAPPING)
R533	RS01Z910J-	R M-OXIDE FILM	1W 91 OHM J (TAPPING)
R534	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R536	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R537	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R538	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R539	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R540	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R541	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R542	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R543	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R544	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R545	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R546	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R547	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R548	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R549	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R550	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R551	RS01Z330J-	R M-OXIDE FILM	1W 33 OHM J (TAPPING)
R552	RS01Z330J-	R M-OXIDE FILM	1W 33 OHM J (TAPPING)
R553	RD-AZ220J-	R CARBON FILM	1/6 22 OHM J
R554	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R555	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J
R556	RS01Z129J-	R M-OXIDE FILM	1W 1.2 OHM J (TAPPING)
R557	RS01Z159J-	R M-OXIDE FILM	1W 1.5 OHM J (TAPPING)
R558	RS01Z109J-	R M-OXIDE FILM	1W 1 OHM J (TAPPING)
R559	RS01Z159J-	R M-OXIDE FILM	1W 1.5 OHM J (TAPPING)
R560	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J
R561	RD-4Z511J-	R CARBON FILM	1/4 510 OHM J
R570	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R571	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R580	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R581	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R601	RD-4Z512J-	R CARBON FILM	1/4 5.1K OHM J
R602	RD-AZ513J-	R CARBON FILM	1/6 51K OHM J
R603	RD-AZ512J-	R CARBON FILM	1/6 5.1K OHM J
R604	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R605	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J
R606	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R608	RN-AZ7501F	R METAL FILM	1/6 7.50K OHM F
R609	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R610	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J
R611	RW01Z188JN	R WIRE WOUND	1W 0.18 OHM J NON-INDUCT
R612	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J
R613	RD-4Z109J-	R CARBON FILM	1/4 1 OHM J
R614	RS02Z270J-	R M-OXIDE FILM	2W 27 OHM J (TAPPING)
R615	RD-4Z240J-	R CARBON FILM	1/4 24 OHM J
R616	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J
R617	RD-2Z229J-	R CARBON FILM	1/2 2.2 OHM J
R619	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R620	RD-AZ301J-	R CARBON FILM	1/6 300 OHM J
R621	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R622	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R623	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R625	RD-2Z204J-	R CARBON FILM	1/2 200K OHM J
R627	RD-2Z244J-	R CARBON FILM	1/2 240K OHM J
R628	RD-2Z244J-	R CARBON FILM	1/2 240K OHM J
R629	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R630	RN-4Z4701F	R METAL FILM	1/4 4.70K OHM F
R631	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R632	RD-4Z563J-	R CARBON FILM	1/4 56K OHM J
R633	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R641	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R642	RD-AZ911J-	R CARBON FILM	1/6 910 OHM J
R644	RD-2Z270J-	R CARBON FILM	1/2 27 OHM J
R645	RD-4Z474J-	R CARBON FILM	1/4 470K OHM J
R646	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R647	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R649	RN-AZ3002F	R METAL FILM	1/6 30.0K OHM F
R650	RN-AZ6811F	R METAL FILM	1/6 6.81K OHM F
R651	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J
R652	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J
R653	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R654	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R655	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R657	RN-AZ3001F	R METAL FILM	1/6 3.0K OHM F
R658	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R659	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R660	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R661	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J
R662	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R663	RD-4Z152J-	R CARBON FILM	1/4 1.5K OHM J
R670	RX10V829J-	R CEMENT	10W 8.2 OHM J VERTICAL
R671	RD-AZ393J-	R CARBON FILM	1/6 39K OHM J
R672	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R673	RD-4Z154J-	R CARBON FILM	1/4 150K OHM J
R701	RD-4Z471J-	R CARBON FILM	1/4 470 OHM J
R703	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J
R704	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J
R705	RD-4Z470J-	R CARBON FILM	1/4 47 OHM J
R706	RS02Z184J-	R M-OXIDE FILM	2W 180K OHM J
R707	RS02Z184J-	R M-OXIDE FILM	2W 180K OHM J
R708	RS02Z184J-	R M-OXIDE FILM	2W 180K OHM J
R709	RS01Z102J-	R M-OXIDE FILM	1W 1K OHM J (TAPPING)
R710	RD-2Z274J-	R CARBON FILM	1/2 270K OHM J
R711	RD-2Z274J-	R CARBON FILM	1/2 270K OHM J
R713	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J
R801	RD-AZ273J-	R CARBON FILM	1/6 27K OHM J
R802	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R803	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R804	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J
R806	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R807	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R808	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R809	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R810	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J
R811	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R812	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J
R813	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R814	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R815	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R816	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J
R817	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J
R818	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R819	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R820	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R821	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R822	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R823	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R824	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R825	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R826	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R827	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R828	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R829	RD-AZ106J-	R CARBON FILM	1/6 10M OHM J
R830	RD-AZ106J-	R CARBON FILM	1/6 10M OHM J
R831	RF-4Z101J-	R FUSIBLE	1/4 100 OHM J
R833	RF-4Z101J-	R FUSIBLE	1/4 100 OHM J
R835	RF-4Z101J-	R FUSIBLE	1/4 100 OHM J
R837	RF-4Z910J-	R FUSIBLE	1/4 91 OHM J
R838	RF-4Z910J-	R FUSIBLE	1/4 91 OHM J
R841	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R842	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J

LOC	PART-CODE	PART-NAME	PART-DESC
R843	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
RL001	5SC0101006	SW RELAY	KI-S-112M 1C-1P(HR-CR313)
SC	9970800038	CABLE SIGNAL AS	15P+1C/DDC=1.5M(GY-286A)
SC001	9970710201	CONN AS	BL101NG+35740-9002=350
SG301	4SG0D00104	SPARK GAP	S-23 1.5KV
SG302	4SG0D00104	SPARK GAP	S-23 1.5KV
SG303	4SG0D00104	SPARK GAP	S-23 1.5KV
SW001	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW002	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW003	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW004	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
SW005	5S50101Z01	SW TACT	KPT-1115VM 1C-1P
T001	5RM0000102	TRANS SMPS	DWT-715B
T002	5RY0000004	TRANS SYNC	DST-710C
T501	5RD0000050	TRANS DRIVE	DDT-715B
T601	5RH0000124	FBT	FFA79013U
T602	5R50000037	TRANS BUCK	DT-715B
TH001	DTP8D13---	THERMISTOR	TP8D13
VR001	RV6421502P	R SEMI FIXED	CCT 065AT 5K OHM B TAP
VR601	RV6421503P	R SEMI FIXED	CCT 065AT 50K OHM B TAP
VR602	RV6421503P	R SEMI FIXED	CCT 065AT 50K OHM B TAP
X201	5XE12R000E	CRYSTAL QUARTZ	HC-49/U 12.00000MHZ 30PPM

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NOTES

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